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PREFACE.

The first volume of the Edinburgh Medical Journal is now in the hands of the public. It has been the earnest desire of the Editor to approach as nearly as possible to the standard of excellence held out at the commencement of his labours; but, after the experience of a year, he is compelled to state that he has not yet succeeded in realizing his ideal of what the work should really be.

For this result he is not wholly to blame, as the unprecedented supply of Original Communications, which has been kindly placed at his disposal, has necessitated the curtailment of the Periscopic section to less than its former limits. During the early numbers of the Second Volume, ample compensation will be made for this deficiency.

To the contributors, of all classes, who have favoured him with so many unsolicited papers, and to others who have testified their friendly intentions in other forms, the Editor has to return his most grateful acknowledgments. The large and increasing sale of the JOURNAL is owing chiefly, if not exclusively, to the originality and talent of its contents, and not to mere Editorial superintendence. It will, therefore, continue to be the pride and the privilege of the Conductor, to secure for the work writings of the highest merit, in the various departments of Medical Investigation.

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THE

EDINBURGH

MEDICAL JOURNAL.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*Perineal Fistula left by the Transit of the Infant through the Perineum.* By J. Y. Simpson, M.D., F.R.S.E., Professor of Midwifery in the University of Edinburgh, etc., etc.

The length of the perineum in the adult virgin female is usually stated by anatomists to vary from one inch to one inch and a half; but it is very frequently found shortened in women who have borne a family, from the liability of its anterior portion to become more or less fissured and lacerated during the passage of the child's head and shoulders.[1]

In consequence of the natural shortness of the perineum, it looks *a priori* almost impossible that the child and its appendages should ever be propelled directly *through* it during labour, while the orifices of the vulva and anus were left entire. The state, however, of the perineum is very different in the stage of labour immediately preceding the expulsion of the child, from what it is in the non-parturient condition. By the time the child's head at last fully dilates the external parts in labour, the perineum is so stretched, that it has become thin and lacerable, while, at the same time, it is enormously increased and expanded in all its superficial dimension. The perineum when thus distended by the child's head has been found to measure six inches in breadth, or across from one tuberosity of the ischium to the other; and in length, three inches, or more, from the posterior commissure of the vaginal orifice, backward to the anterior commissure of the dilated and elongated orifice of the rectum, or as much, sometimes, as seven inches from the fourchette to the point of the coccyx. When the perineum is thus attenuated and expanded, like a thin cap placed upon the head of the child previously to its expulsion, it is easy to conceive that a fissure occurring in the centre of the stretched perineal structures, would readily enough tear and extend under the strong expulsive efforts of parturition, so as to allow the head of the fœtus to pass through the accidental opening; and if the resulting lacerations assume, however irregularly, the forms of X, Y, or V, with their diverging lines passing somewhat on either side of, but without rupturing *into*, the orifices of the rectum behind, or the vulva in front, we may have the infant, cord, and placenta, traversing the perineum, while the rectal and vaginal canals remain entire and intact.

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[1] See Remarks on the Frequency of its Rupture, in "Obstetric Memoirs and Contributions," vol. i. p. 367.

Instances in which the infant and its appendages were thus born and expelled through a central aperture in the perineum, have been published by Nedey, Coutouly, Merriman, and various other accoucheurs; and references to most of the recorded cases of this singular lesion, are to be found in the writings of Moreau,[1] Duparcque,[2] and Dr Churchill,[3] upon the subject.

None of these authors specially allude to any examples of a fistulous opening remaining subsequently in the perineum, as a result and a proof of the perforation of it in the process of parturition. Such a result, indeed, appears to be very rare, in consequence of the edges of the lacerated wound almost always perfectly uniting, under common surgical care and treatment, subsequently to delivery. A preparation in the Obstetric Museum of the University of Edinburgh presents, however, an exception to this general rule, and is a well-marked instance of that rare lesion, viz., perineal fistula in the female.

Case I.—The patient was attended during her first labour by a practitioner in the west of Scotland. The labour—as he subsequently informed me—was tedious, particularly during the advance of the hand through the lower part of the pelvis. After the perineum had become much stretched and distended by the child's head, and when the artificial support of it by the hand happened to be for a short time withdrawn, a very strong expulsive effort supervened, and the practitioner was recalled to the patient in consequence of her loud cries. To his surprise he found the head passing, or in fact, already nearly entirely passed through a rent in the perineum; and the next pain expelled the body of the child through the same opening. Through this same perineal perforation, the cord and placenta were delivered. The sphincter ani and the anterior edge, or fourchette, of the perineum remained untouched. The sides of the laceration did not entirely unite. A year subsequently to her delivery I saw her, along with the late Dr Dawson of Bathgate, under whose care she had come with symptoms of phthisis. The perineal fistula still remained, and, as we found on a *post-mortem* examination, some months subsequently, it was about the size of the barrel of a goose-quill. The opening was situated about half an inch behind the posterior commissure of the vulva. The perineum was very thin at the site of the fistula, and converging lines of old cicatrices were still visible on its mucous surface. But its anterior edge, or fourchette, was strong and dense, and placed unusually far forwards over the vaginal orifice.

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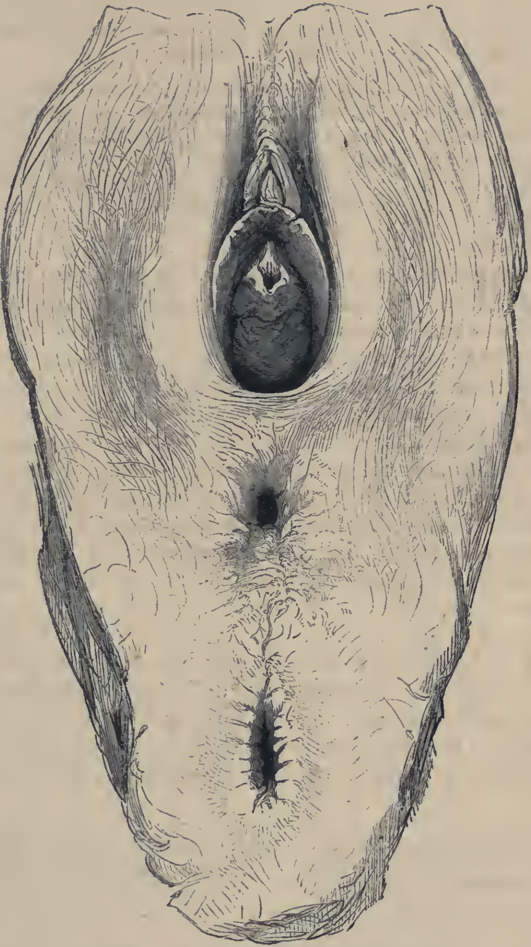
[1] Revue Medicale for June 1830; or Moreau's Traité des Accouchemens, vol. ii., p. 462, etc.

[2] Histoire des Ruptures de l'Uterus, p. 368, etc.

[3] Diseases of Pregnancy and Childbed, p. 403.



SKETCH OF THE PREPARATION.

I have only been able to find on record two other cases, in any way analogous, of perineal fistula originating in perineal perforation during labour. They are described by Marter of Kœnigsberg,[1] and Halmagrand[2] of Paris.

Case II.—In a primiparous woman, to whose assistance Marter was summoned by a midwife, he found the head of the child already passing through a central laceration in the perineum. The child was speedily pushed, by the strong pains that were present, through the abnormal aperture, and the placenta afterwards followed through the same crucial-shaped laceration. Inflammation of the lips of the wound subsequently occurred, and, despite of the use of ligatures, a perineal fistula remained, by which the menses escaped during the two subsequent years. She then again became pregnant; and this second child was born naturally by the vulva.

Case III.—In 1838, a patient applied to Halmagrand, sometime after delivery, with a perineal perforation not yet cicatrized, and forming a communication with the vagina. He cut the anterior bridle of the perineum, which was slender, made raw the edges of the fistula, and brought them together by the apposition of the thighs alone. Reunion and cicatrization took place in a few days. The patient was subsequently confined without any renewal of the perineal lesion.

To the preceding remarks let me merely add, that, as a means of preventing central-perineal laceration, and the chance, consequently, of perineal fistula as a result, we have to trust to—1st. The common methodic manual support of the perineum, so as to save excess of pressure upon it, while at the same time we push the head forward to the vaginal opening—a means which, in the practice of Denman and Lachapelle, succeeded in preventing the child's head from passing through the perineum, after its central structures were actually burst; 2d. Delivery of the head, and its proper guidance through the vulva by the forceps, as has been effected by Doutrepont, Hüter, and Braun, in cases in which this accident was impending; and, 3dly. Lateral incisions, if absolutely necessary, of the anterior edge of the perineum; for in this, as in the more common longitudinal forms of ruptured perineum, it is, I believe, better practice to make one or two slight cuts on either side of the fourchette, so as to regulate the site and direction of the lacerations that must occur, rather than leave their form and their character to mere chance alone. It is always an infinitely more important matter to save the sphincter of the anus than the sphincter of the vagina.

Article II.—*Observations on Croup:—Nosography.* By Charles Wilson, M.D., Fellow of the Royal College of Physicians, Edinburgh.

It would be difficult, in as far as outward symptoms are concerned, to specify any form of disease more fitted to rivet the attention, and awaken the sympathy of the practitioner, than that of croup. The usually insidious development of its earlier stages; the steady advance, yet the often deceptive and apparently fluctuating nature of its progress; the peculiar features by which the eye of experience already recognises a great and closely impending danger, while the unbroken spirit of childhood is yet scarcely checked in its playfulness; the intense and painful character of the symptoms, as they become gradually aggravated, and the disease hurries on to a fatal termination; and, most of all, in one sense, the distinct and limited localisation of the disorder, of which the little sufferer shows his own consciousness by the most expressive gestures, and which seems to challenge to the utmost our energies and skill for its cure; all contribute to invest it with an interest which, especially during the last half-century, has rendered it everywhere a topic of anxious and continually widening inquiry.

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[1] Siebold's Journal für Geburtskunde, vol. ix., p. 726.

[2] Demonstrations des Accouchemens, p. 577.

Yet those who are the most conversant with the phenomena of the disorder, and who have entered the most extensively into the study of its literature, will, we believe, be the first to acknowledge, that the views of the profession, as to the special character of croup, its forms, its diagnosis, its essential nature, and its treatment, are still far from having reached that unity, even with reference to certain of the more important details, which might have been expected as the result of the large expenditure of zeal and ability which have been devoted to their consideration. Many of those who have communicated their observations have proceeded upon so limited a series of facts, that, even where they were really accurate in their averments, they have not been always able to secure that confidence in their deductions, which a circumscribed experience is often inclined to claim the most peremptorily, but which science is naturally jealous of conceding to anything that is based so narrowly. Others must be held as amenable to the double reproach, of a generalisation defective both from the want of duly extended opportunities of knowledge, and from the habit of regarding these in one particular phasis only, to the neglect of others equally, or still more necessary for their adequate comprehension. Others again, with a far larger amount of experience, at least numerically, have yet only derived it from an examination of the disease as it has presented itself in some conspicuous epidemic form; and from the character of this, usually stamped with striking peculiarities, they have inferred too absolutely the laws which regulate the appearance of the disorder at other times, and under other circumstances. It is in this respect, perhaps, that no one has erred more prominently than the eminent Bretonneau, whose otherwise clear and able expositions have exercised so large an influence in giving a bias to the views of other continental writers.

Under these circumstances, it appears a duty in those who have themselves had considerable opportunities of witnessing the disease, to contribute each the results of his own individual experience; that the basis of facts, valuable wherever gleaned, if gleaned scrupulously, may be widened and consolidated, as the only safe method of testing, if not of reconciling, discrepancies, and securing breadth and stability of doctrine. They may present little novelty: but the mere hunter after novelty, with his hasty generalisations, proceeding either upon a limited induction, or upon an induction the precise limits of which remain unrevealed, and rushing hither and thither with his assumptions of originality, has been ever the pest of medicine; and has injuriously implicated its best energies in the ungrateful task of demolishing statements which, habitually advancing too authoritatively from the special to the universal, ought never to have been hazarded, yet are continually renewed. In the following remarks, therefore, it will be my leading anxiety to keep in view, that in science, as in politics, it is a still greater merit to govern well than to extend the empire. Employing only a casual reference to the general results of my experience in croup, previous to 1836, as preserved by me prior to that date, they will be founded almost exclusively upon the opportunities which have occurred to me during the period which has since intervened; consisting of 79 cases of the disease, treated upon a nearly uniform method, and of 61 of which I have preserved extended details. This latter number represents such cases only as were under my own entire management; excludes all instances of the imperfectly developed disorder, such as were neither exquisite enough in form, nor marked enough in severity, to stamp the distinct entity of a disease, or to test its treatment; does not embrace any of those other affections of the larynx, whether primary or secondary, which approach croup in certain of their more prominent symptoms, but differ from it in the essential basis upon which these are established; and is independent of other examples of the confirmed disorder which I had opportunities of seeing in consultation.

In referring to my individual experience, it will thus be understood as being desired to be regarded as more directly resting on the 61 perfectly developed cases, of which I have preserved a full record, and which have been gleaned during a currency of eighteen years. To lean upon anything beyond these, would be, doubtless, sometimes to trust to impressions floating vaguely in the memory, to which it would be rash to attach confidence. To escape this danger, moreover, in as far as possible, with even my detailed observations, I have subjected the whole of them to a rigid analysis and synthesis; separating and recombining the different classes of facts, and grouping them into nearly thirty distinct tabular forms, so as to elicit each deduction, which I have ventured to present, with the utmost accuracy and certainty that my materials enabled me to command. In thus essaying, however, a faithful transcript, I trust that it is not without prudence that I have forborne to attempt to express by ratios or numbers what cannot be represented by numbers: the intensity, the individual modifications, and, above all, the reciprocal relations of symptoms. Wherever an illustration suggests itself, I shall gladly have recourse to the writings of others, and shall cite my authority; but, beyond this, the tenor of these statements may be regarded as conveying merely the results of direct observation. As they do not relate to any marked epidemic form of the disorder, nor to experience of cases among any special class of the population, such as those ordinarily met with, necessarily under peculiar circumstances of origin and management, in extensive hospitals, but have been gathered from a variety of conditions, and over a considerable tract of years, it is trusted that they may be received as presenting a fair average type of the disease, as it exists endemically, for so it may be considered, in the south-east of Scotland.[1]

The leading features of an attack of true, or exudative croup, admit of easy delineation. It is important to remark, that in only one or two instances have I seen the genuine form of the disease present itself suddenly, or with its more violent and characteristic symptoms developing themselves in the lapse of a few hours. Its nearly universal course is to show itself, at first, in the form of what is often mistakenly regarded as an ordinary catarrh; and even this, for the most part, of a very mild description, the child retaining its appetite and undepressed liveliness. Gradually, however, the symptoms acquire a character of greater intensity: but as these still appear only, or chiefly, in occasional and not extreme exacerbations, and the patient reverts quickly to his former condition of ease, and even gaiety, little alarm is aroused in the bystanders; or it is, at least, lulled, almost as soon as excited. The respiration may be observed to be occasionally slightly wheezing or oppressed during sleep: but the child awakes, occupies himself with his play, and the indication of mischief ceases and is forgotten. In nearly every instance there is, from the beginning, a moderate, yet distinct, and occasionally a smart, amount of pyrexia; but it again has its peculiarities, and is, for the most part, characterised by only heat of skin, and by transient dullness, never amounting to lassitude. Thus, it seems to present itself as a description of excitement, rather than in the form of that assemblage of symptoms, affecting the sensorium or digestive canal, ordinarily designated as fever; and the child is not readily regarded as a serious sufferer, who still, though with, perhaps, a slight degree of fretfulness, shows no lasting inappetence for his food or disinclination for his amusement.

The cough, however, evinces something peculiar, from the very commencement. It is described as sometimes short and rare; but generally as hoarse, rough, shrill, or trumpet-like. So all but universally has it occurred to me to learn this, from intelligent describers of what has been the course of the illness previous to application for medical assistance, that, in the few instances where the cough has been said to have presented, at any time, the sound of that of an ordinary bronchitis, I have been inclined to suspect the inaccuracy or the inattention, either of those who have not been taught to discriminate the peculiarity of the sound, or of those whose suspicions have failed to be excited. Expectoration, at this time, is usually absent; or it is scanty, and consists of a clear viscid phlegm. The voice is observed to be altered and hoarse, at least at intervals: at one instant clear and natural; at another, especially in its higher tones, changing suddenly into dissonance. Now and then, the pyrexia setting in smartly, and being attended with thirst and anorexia from its earliest appearance, the disease presents fewer and less marked deviations, and advances more steadily to its acme. It has occurred to me repeatedly, to observe the attack commence with patients who were affected at the time with diarrhœa. The appearance of the tongue is variable, and conveys no indication of moment. The wheezing of the respiration recurs at intervals, but it is feeble in itself, and remains as yet unattended with any painful anxiety in inspiring; and thus it is, that a phenomenon which is so transient, and becomes dispelled so entirely, and has been hitherto associated with so little else that appeared formidable, seems rather fitted to disarm than to arouse apprehension. The peculiar cough, however, always exists for some time prior to the sonorous respiration. At this stage of increment of the disorder, the deglutition is not impeded; but this cannot be asserted, so unconditionally as is usual, of all the other periods and degrees of severity. Neither does sensation of pain, existing in the larynx itself, appear often sufficiently prominent to arrest the attention; while we are as seldom entitled to attach importance to that which may be induced by immediate pressure, upon an organ in its normal condition so acutely sensitive to direct application of force. In only one instance was coryza reported as a forerunner of the disease.

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[1] In 1839, a paper was read by me before the Border Medical Society, and printed for circulation in their proceedings for the same year, in which were given the results of 11 cases of croup, treated on a modification of the Italian method of exhibiting tartar emetic in inflammatory diseases. The leading facts of this paper, in so far as related to croup, were transferred into the "British and Foreign Medical Review" for April 1840. At a subsequent opportunity, of which I propose to take advantage to discuss the treatment of croup, it will be seen in how far a more extended experience has induced me to qualify the views entertained at an earlier period.

The initiatory symptoms, which have been just described, may endure for a term of from one to seven days, but far more usually approaching the longer than the shorter of these periods, before alarm of a nearer danger is excited, by the occurrence of a first paroxysm of that more exquisite suffering which denotes that the disease has become fully established. Usually on awaking from a sleep, which has been gradually becoming more restless and oppressed, till the difficult and wheezing respiration disturb it wholly, the patient is seized with an attack of the peculiar cough, more violent than any that has preceded it, and now attended by a new train of symptoms; of varying, but often of such distressing and intense severity, that it is at once manifest that the condition of the sufferer constitutes already a struggle for sheer existence. With a prolonged, sonorous, crowing, or piping inspiration, the patient starts suddenly up; the impeded respiration continues, and becomes aggravated; with chin protruded, mouth gasping, nostrils distended, and muscular efforts the most strenuous, the full inhalation of air is eagerly attempted; the ringing cough is either short and abrupt, or is in shocks of almost convulsive violence; the eyes are watery, staring, sometimes suffused; the countenance flushed, or with livid pallor; the gestures are agitated, and the sufferer clings to objects near him, with features expressive of terror and wild distress, or grasps at his neck, or thrusts his fingers into his mouth, as if to tear away the obstruction that choked and agonized him; the face and neck become turgid from the retarded circulation; and the pulse is either full and bounding, or suppressed and irregular, in proportion to the progress and degree of the asphyxia. After a short interval of this more extreme distress, exspuition, often with vomiting, of viscid matters ensues, the glottis is temporarily cleared, and a lull follows; the paroxysm either wholly remitting, or the patient subsiding into a state of merely comparative tranquillity. Not rarely, even the very earliest paroxysm of the developed disorder presents the whole of these symptoms, in all the rigor which has been described. Sometimes, it is only after a second attack, and by a more gradual aggravation, that they attain their full intensity.

Although, even after an assault of this remarkable urgency, the remission may be still so perfect, that the practitioner, who has possibly been now first summoned, may find, on his arrival, his patient once more not only without a single prominent symptom, but apparently unoppressed and cheerful, he will yet be far from accepting any assurance of safety from a calm so delusive. If the description of the attack, and especially of its precursory symptoms, be not sufficient to convince him of its precise nature, there are still symptoms, or tokens, which may be easily elicited from the midst of this semblance of security, which reveal, with unerring faith, the true character of the evil, and warn us of a danger which may be temporarily obscured, but is not checked. An appreciable amount of pyrexia is here not likely to escape his observation. If a cough occur in his presence, or be intentionally excited, it will evince, more or less of that rough, dry, broken, or clanging sound, so peculiar in itself, and so characteristic of the disease, that its distinct recollection never afterwards forsakes the ear to which it has once become familiar. The child probably gives utterance to its voice freely, or some expression, or cry, may be easily educed; and a hoarseness may here be observed also, but not always, at this stage at least, so well-marked, or so uniformly present, as the peculiarity in the cough. But, above all, an examination of the fauces, too usually neglected, or weighed inadequately, will afford the most conclusive grounds for a sure decision, when taken in connection with the points which have been detailed previously; and towards this, as in every respect a most important feature of the disease, and a basis for its true pathology, the attention cannot be too undeviatingly directed.

In trusting to a patient's history of his case, or to that of the friends or by-standers, we place faith in their capacity for observation, which is often null, or in their memory, which is not rarely treacherous; and both will frequently deceive us. But when we quit the facts to be gleaned doubtfully from the anamnesis, and approach to ascertain the actual condition of the sufferer, we have, in the infant at least, and in this disease, that which neither fancies, feigns, nor prejudges, and we encounter the tokens in their obvious reality. Even at the earliest stage of croup which I have had opportunities of examining, where chance, or the jealous anxiety of a mother, previously taught by a sad experience to dread the disorder, has brought me into contact with it, under the foreboding of certain of its characteristic signs, but prior to the occurrence of any distinctly marked paroxysm, as I have made it a rule to inspect, so I have never failed to find the fauces already affected; to an extent which, indeed, varied considerably, but which was in every instance sufficiently obvious, and always characteristic. This affection consists in a slight tumefaction of the tonsils, in which they present a somewhat granular and irregular surface; and are of a pallid red colour, considerably deeper than their healthy aspect, but greatly less intense than what is usually observed in ordinary tonsillitis. The degree of tumefaction varies, from the slightest amount of projection beyond the thickness of the pillars of the palatine arch, to, as I observed in a solitary example, the size of a hazel-nut; but, in no instance does the colour, though presenting trifling gradations of shade, appear otherwise than of that vivid tint which seems to denote its dependence upon congestion in the local capillary system of the arteries, rather than in the veins, unless when, through other causes, as during a suffocative paroxysm, or towards the close of the disease, the surface partakes of the general livor. Now and then the uvula also is slightly tumid, and a blush of red tinges the whole palatine arches, or the upper portion of the gullet. Once or twice only the parts were distinctly red, while the tumefaction was so slight as to be scarcely distinguishable. Along with this, though only in a small minority of instances, there may be observed traces of exudation on the amygdalæ or pharynx. With the peculiar cough, and the condition of the fauces which has been described, once fairly ascertained, we shall now fail in our duty if we are not, in spite of whatever degree of existing tranquillity, incited forthwith to the adoption of energetic measures of cure; because all idea of the non-existence of the disorder, or that of its existence in a simply spasmodic or spurious form, may now be utterly set aside, and there can be, fortunately, no longer any question, even at a stage so early appreciable, of the actual presence and real nature, any more than of the serious amount, of the danger we are called upon to encounter.

After an interval of apparently entire, or of only comparative ease, but, at all times, with the persistence of the tokens of lurking, and still imminent, danger which have been indicated, the patient is attacked with a renewed paroxysm of more or less aggravated suffering; possibly after the lapse of a few hours, but, in all probability, not till early in the ensuing night, after awakening again from a gradually perturbed sleep. Henceforward, the paroxysms are likely to recur more frequently, while the remissions become less and less perfect; and at length the intermediate periods are never wholly free from distress. The breathing, with a varying rapidity of deterioration, becomes more permanently affected. The inspirations, especially, are more uniformly prolonged and sibilant; or piping, sonorous, or even crowing. Often they are audible at a considerable distance, or even beyond the limits of the apartment. The expirations are sometimes without sound; but they are also frequently prolonged and sonorous, like the inspirations, though with a somewhat graver quality of tone. Usually the breathing is slow or moderate; but it is occasionally rapid, and, in rare instances, suspirant rather than sonorous. The cough continues frequent, peculiar, shrill, clanging or ringing, or rough and hoarse, and often with loud crowing inspiration. Where there are opportunities of observing the expectoration, which is not always easy, it is still constituted either of viscid phlegm, or has a somewhat muco-purulent aspect; or, more rarely, appears curdy, or presents shreds of exudation, or more or less considerable expansions of false membrane. The voice is now either permanently hoarse; or it is wholly extinct, and there is aphonia. The pyrexia has increased, the patient is oppressed, the appetite becomes defective, and the thirst is often considerable; while occasionally, though rarely, the patient hesitates to drink, as if dreading that the act of swallowing should produce an access of suffocation. But still, with all this, there subsists a tendency to remission, and the distress and suffering are sometimes greater, and at other times slighter; yet never, unless in the rare instances where there has been an entire intermission and a relapse in the disorder, with a complete regression to that point from which the patient had once parted. This second period, or that of the full development of the disease, may have a duration of from two to seven days, as ruled by the violence of the paroxysms, and the extent or degree of completeness of the remissions, before bending decidedly towards either recovery or a fatal termination.

Where the disease now happily inclines itself towards a restoration to health, the favourable change is first unerringly indicated by a gradual modification of the signs of the disorder into those of ordinary catarrh. The sonorous respiration, which may have been nearly permanent, becomes again merely occasional, or is once more heard only during sleep; the breathing, at the intervening periods, being calm, easy, and natural. The cough loses its peculiar clangour, and becomes more humid, or catarrhal, and unattended by the crowing inspiration. Now and then, however, there may be a brief recurrence to the original shrill hoarseness; but it is ever more faintly marked, and becomes less and less frequent, till it ceases wholly; the paroxysms of the cough increasing in rarity as they diminish in violence. The matters exspued may be still a clear and viscid phlegm, or a curdy looking or pultaceous substance, sometimes with slight streaks of blood, or with occasional portions of false membrane; but these are soon superseded by an opaque mucus, generally in very moderate quantity. The voice regains its natural quality, though there is still an occasional alteration of its higher tones, when the child is fretful or crying; and it is only after some lapse of time, now and then after several weeks, that the hoarseness can be regarded as entirely dissipated. The tonsils become paler and less tumid; the declension of the swelling, however, being by no means generally rapid. The pyrexia diminishes; the exacerbations are gradually more and more slightly indicated, and, at last, not at all; the skin becomes suffused with a pliant and gentle moisture; the appetite returns; the child continues more uninterruptedly lively and playful; and convalescence is fairly established. This period of decrement of the disorder may endure from three to ten days; but, though its termination may be regarded as denoting the safety of the patient, in as far as relates directly to the croup, it by no means always marks the limit of a complete restoration to health. Now and then, especially in children naturally of delicate constitution, the catarrh, into which the croup had verged, assumes a chronic character; or the child remains puny, with disordered gastric functions; or he is pale and anemic, as if from aglobulosis of the blood. These sequelæ of the disease may protract themselves through a period, which I have known to extend from fourteen to forty days, before entire recovery. Upon the whole, it may be considered that a case of confirmed croup, successfully treated, and estimating its entire periods, may have a duration of from six to twenty-four days; while with certain conditions, and under the intervention of certain deuteropathic phenomena, the consequences of the disorder may extend the gross period of illness to beyond two months. In thus stating, however, the result of my own experience on this head, it is not forgotten, that no general limit can be assigned as the ordinary duration of the disease, irrespective of the special mode of treatment adopted for its cure.

Where a case of croup, always extremely dangerous, has terminated in death, there has been often, though by no means uniformly, in the development and succession of the symptoms, even from their earliest stage, an appreciable earnest of the coming fatality. During the period of increment of the disease, while the remissions continue to be still distinctly defined, we have, in such cases, something in the general features of the attack, which seems to denote either a special intensity of action in the cause, or a peculiar susceptibility on the part of the sufferer. The respiration acquires, with marked rapidity, its characteristic qualities; and, almost at the commencement, is obstructed, sonorous, or stridulous. The hoarse and suffocative cough, with crowing inspiration, is scarcely preceded at all by the less violent, short, yet still peculiar cough, which is more usually its harbinger. The flow of viscid phlegm from the mouth is more abundant, or it is seen copiously adherent to the fauces. The degree of affection of the voice more frequently approaches complete aphonia. The pyrexia is more acutely developed; and there is either great restlessness and anxiety, or considerable oppression. Under such circumstances, I have seen, yet only in a single instance, the disease pass through its whole early stage in but a few hours, before it evinced itself in a decisive paroxysm of exquisite acuteness: yet still, on the second day, this patient appeared lively and cheerful, and died, somewhat suddenly at last, so late as the seventh day. As a rule, however, this initiatory stage, in the generality of fatal cases, may endure for from a day to seven or eight days, according to the length of interval, and degree of completeness, of the remissions, before the symptoms assume that character of persistence, with occasional exacerbations but never void of acute suffering, betokening the acme of the disease, and conducting it relentlessly to its termination.

The fully developed period of the disease, in fatal cases, when once established, is rarely protracted. With rapid grades of deterioration, the inspirations become ever more laboured and sonorous. Every feature and movement, or attitude of the sufferer, is eloquent of extreme distress. Constant change of position is attempted, but with assuagement from none. The head is thrown back, the mouth opened, with the lips distended and their angles retracted, and the under jaw fixed, so as to favour to the utmost the ingress of air, to lessen the angle of its current, and give effect to the action of the direct and collateral muscles of respiration, urged by the anguish of suffocation into the most energetic contractions. The larynx moves forcibly and prominently upwards and downwards; the clavicles heave, and the diaphragm is powerfully depressed, in almost convulsive labour, to overcome the obstruction which resists the expansion and inflation of the chest. Again and again the hand is thrust into the mouth, or grasps at the throat, in piteous attempts to snatch away the hinderance. The cough, like the voice, loses by degrees its shrill and broken metallic clangour, and becomes feeble, whispering, and without volume. The heart palpitates. The pulse is small, excessively frequent, irregular, or fails utterly. The anxiety and restlessness are poignant as before, but the increasing feebleness of the patient blunts gradually the force of their expression; and they are evinced at last, sometimes, by nothing more distinctly than by a peculiarly beseeching look of the eye, which seems to solicit help and relief, as obviously as it indicates to us the still entire consciousness of the sufferer. Beyond this, a degree of stupor now usually supervenes; the face and neck, and sometimes the hands, are tumescent and puffy; sometimes the features present an appearance of collapse and shrinking; the upper parts of the body are bedewed with chilly perspirations; a livor, dark on the lips and under the eyes, more pallid elsewhere, diffuses itself everywhere over the surface; the breathing is gasping, and accompanied with copious mucous râles, or even, towards the extreme close, becomes perfectly easy, and without struggle; the cough ceases; the eyes roll upwards, with the advance of the exhaustion and sopor; and death at last ensues, not rarely in the midst of a calm which contrasts soothingly with the turbulent agony of the previous disorder. Sometimes, however, the fatal issue is more abrupt: and the patient, with an almost frantic vehemence of suffering, expires suddenly in the midst of an acute paroxysm; or starts to his feet, or even leaps from his bed, with much of his strength still remaining, makes a few fruitless efforts to respire, and sinks down lifeless.

The gross duration of a fatal case, reckoning from its first initiatory symptom, will be found to range usually between from four to ten or twelve days, the more protracted periods ordinarily relating to cases which have been modified by some important complication; but there are rarer instances, either from the occurrence of a relapse, after a more or less perfect abeyance of the symptoms, or, in the event of their entire and permanent cessation, from the intervention of certain secondary causes to interrupt the convalescence, in which the issue may be deferred to a period which I have known to vary from fifteen to forty-five days. In sixty fatal cases, reported from various districts of Denmark, the mean duration of illness was 4.44 days; but possibly little account was taken here of the duration of the prodromi, and stage of increment, of the disease.[1] Blaud, indeed, relates an instance in which death occurred within sixteen hours of the first seizure, and even two others which reached their fatal termination in six and in eight hours, and in all with the perfect formation of a false membrane;[2] but in such cases there seems still greater room to suspect that the initiatory symptoms have been either overlooked or disregarded, if the knowledge of them have not been wilfully concealed by the by-standers to excuse the dilatoriness of their fears.

Such are the general outline and the succession of phenomena of an attack of croup, as it may terminate in recovery, or in death. But, in order to approach more closely to an efficient representation of the disease, its leading features deserve to be somewhat more specially and circumstantially considered.

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[1] *Statistisk Comiteberetning:* Bibliothek for Læger, January 1849, p. 23.

[2] *Nouvelles Recherches sur la Laryngo-Trachéite,* pp. 47, 51.

ARTICLE III.—*On Medical Evidence in the Preliminary Investigation of Criminal Cases in Scotland.* By JAMES CRAIG, F.R.C.S., Ludgate Lodge, Ratho.

[The following formed the latter part of an Address on the Law of Inquests, read before the Harveian Society of Edinburgh, at the Annual Festival, April 12, 1855. The earlier portion embraces a sketch of the Law of the Coroner in England, and of the practice of inquests as they exist in Austria, in our East Indian Possessions, in France, Prussia, and Bavaria; and we are glad to inform our readers that Mr Craig intends publishing in a separate form his able and important address.]

IN discussing the Law of the Coroner, I am perfectly aware that I tread on dangerous ground, and broach a subject which involves the utmost contrariety of opinion. In common with many others, I have for many years past been satisfied, that our present mode of procedure, in respect to cases of death under extraordinary or suspicious circumstances, is not only unworthy of our state of civilisation, and inadequate to its wants, but, moreover, as shall be afterwards shown, wholly insufficient to attain the ends of justice. I purpose offering a few suggestions, with the view of directing attention to the subject, and proposing for consideration a more suitable and certain method of inquiring into all cases of death under doubtful or extraordinary circumstances. A different mode of procedure from that which at present prevails, appears to be urgently called for, in order to remove what has, doubtless, been often an inducement to crime, and the cause of many blots, foul, though unseen, on the scutcheon of our national morality.

Few persons, probably, are aware that the office of coroner, now altogether unknown in Scotland, yet at one time existed in that country. In the ordinance of Edward I., "*super stabilitate terre Scocie*," he is specified as a necessary and subsisting officer, and he frequently makes his appearance in the oldest records of the Justice-Ayres. One principal part of his duty seems to have been, by arrestment of the person, effects, or otherwise, to secure the compearance of offenders for trial. In the record of the Justice-Ayres begun at Jedburgh 31st October 1502, there is an entry of the "*bona arrestata per Coronatores de Jedworth*," consisting of "oxin, ky, hors, scheipe, ruks of corne, nolt," and the like, belonging to a number of different persons there named. In the same book there is entered a precept under the hand of the king, dated 12th April 1504: "Our sovrane lord commands Maister Richard Lawson of ye Herigge, till tak sourete of William Dudyngston, *crownar* of Twedaile, under ye paine of doubilling of the unlaw of tene punde. That the said *Crownar* shall enter Jok Wilson's dwelland in the Glene upon Tueyd, in ye next Justice-Ayre of Peblis that sal be halding, sic lik as the said *Crownar* suld half enterit him, in the last ayre halding of before at Peblis."

There are several other entries in which the name of *crownar* or *coronar* occurs, where interesting details regarding the manner of what was anciently called "taking up dittay," in Scotland, will be found. To illustrate the practice of inquests in Scotland, I shall give a brief outline of the manner in which they are conducted in the county of Mid-Lothian.

1*st.* In all cases of sudden death, the district constable repairs to the place where it has occurred, collects information, and sends off a report immediately to the superintendent; and, in cases of rape, child murder, or concealment of pregnancy, the *constable* is to ascertain, with precision, all appearances exhibited, such as marks of feet, blood, etc. etc. If there be any circumstance calculated to raise ground of suspicion as to the death, such as external marks of violence, bruises, fractures, etc., the constable is to apply to the nearest medical man without delay; and, after an examination, is to obtain a certificate, and forward it immediately to the superintendent. In all cases of serious assault, and where death is likely to occur, the constable, without delay, procures the assistance of the nearest medical man, and sends off a report, as before described; and instructions are given as to what circumstances the medical man is to certify. Upon receiving such a report, it is laid by the superintendent before the procurator-fiscal of the county, by whom again it is submitted to the crown-agent, and thereafter his instructions are acted upon.

Notwitstanding our national reputation for superior education, it does seem strange to me that our police constables should be considered competent to ferret out the necessary evidence in cases which must, from their very nature, be complicated and obscure, even to those whose daily business is with the like. Under our active and zealous county superintendent, who is responsible for the reports, and who personally investigates all doubtful cases, this system is said, by lawyers, to work well enough. They, however, can be no fit judges in such matters. Fancy, for a moment, a constable's report quashing a will case! And is the cause of a man's death more easily discovered than a testator's intentions? Is the punishment or the prevention of crime of less importance to the community, than whether Jack left to Tom or to Bill L.100?

2*d.* But this initiatory step has not the sanction of a legal enactment. It is, in fact, an order to the district constable by the superintendent, and I admit it to be an important one, in so far as that by it cases of sudden death are now brought under the notice of the legal authorities. That is one step in advance.

3*d.* There is no fund to remunerate medical men for the trouble and responsibility thus put upon them, and I am not aware that they ever receive any remuneration.

4*th.* Procurators-fiscal of counties, etc., were formerly paid by fees, exacted in each individual case; and an inducement was thus held out to investigate every one. In some counties, to such an extent was this practice carried, that fees to the amount of L.2000 per annum were known to have been claimed. Now, however, the practice is changed; those functionaries are paid by fixed salaries, and I am doubtful if the same zeal will be displayed in bringing up cases for trial.

Another apparent step in advance, is an enactment in the new registration bill, where, in cases of new-born children exposed, or found dead, or in cases of persons found dead, a report is to be sent to the procurator-fiscal, who, "in case of a precognition," is to report to the registrar before he can enter the case in the register. I may here remark, however, that the birth and burial of still-born children are not to be registered, and thus every facility is afforded for concealment of pregnancy, and for the crime of child-murder. The procurator-fiscal does not appear to be bound by the act to investigate the "cause of death," and hence the entries in the register in such cases are worthless. For example:—In a case of an illegitimate child, some months old, found dead in bed, which came recently under my own observation, and was reported to the procurator-fiscal, no *post mortem* examination took place. It was the second child by the same mother found in similar circumstances within two years, and both were supposed to be *mislaid*, although the coroner of Middlesex, in a population of between eight and nine hundred thousand, reports that not one in 200 children found dead in bed, has lost its life in consequence of being *mislaid*. The case mentioned stands in the register, "found dead in bed." Again, a man was taken suddenly ill in a canal boat, and died in a few minutes. The case was reported to the procurator-fiscal, no *post mortem* examination took place, and in the register the cause of death is entered as "unknown."

That we do want a court of inquiry to ascertain the cause of all sudden and suspicious deaths, few will be bold enough to deny. In some counties, I doubt not, examinations are made with care; in others, I unhesitatingly assert, that there is frequently no inquiry at all, or one conducted more for form's sake, than with the view of ascertaining the cause of death. Several medico-legal cases have been reported to me, where the legal authorities showed either an utter indifference in the performance of their duty, or at all events a remarkable tardiness in fulfilling it; and where, in consequence, the medical men, either to satisfy their own natural anxiety, or that of the relatives as to the cause of death, *at the last hour* performed a *post mortem* examination, without receiving legal authority. They were immediately censured or severely reprimanded, while the fault originated with the lawyers.

Prior to the establishment of our rural police—and some counties still have no police—there was no one to report cases of suspicious deaths in country districts; and, within my own knowledge, every now and then cases occurred in which an examination ought to have been sanctioned, and possibly would have been ordered, but for the parsimony of the exchequer, which refused to pay fees for medical reports or *post mortem* examinations, and hence sheriffs refused to grant warrants for such examinations. I believe that to be a prominent cause of the apparent laxity on the part of the legal authorities. Take two or three examples :—The dead body of a man, respectably dressed, was found in a plantation. I reported the case to the procurator-fiscal, and he requested me to give my opinion as to the cause of death. I refused to give it without receiving permission to make a *post mortem* examination. That was not granted; no means were taken by advertisement or otherwise, to ascertain who the man was; and the body was buried—"unknown." A man was found dead at the side of a hedge, with an empty phial, which had contained laudanum, in his pocket; he was presumed to have poisoned himself, and was buried without examination. An active parochial inspector requested me to examine the body of a man found dead in a ditch on the roadside. I refused to comply without an order from the proper authorities; it was not granted, on the ground that the *constable* did not think there was any suspicion of foul play," and the body was ordered to be buried, as in the two former cases, "unknown." Yet it was known that this man had been drinking with two companions,—that they all left the dramshop tipsy, but in apparent health—and that the body mentioned was found dead a few hours thereafter.

There is a small parish on the east coast of Scotland, containing scarcely 2000 inhabitants. Within the space of five years, the bodies of 14 persons, who had died from unknown causes were brought to the churchyard for interment. Some were found on the beach, having been in the water for various periods of time. The names of some were discovered—others were unknown. One was actually buried as the wife of a certain gentleman, though the body of the said lady turned up alive thereafter! The cause of death was always taken for granted; no examination was ever made, nor even, I believe, thought of. In one instance it was known that the body found was that of one of two men who had been on board a vessel off the coast, but how he had been drowned remains a mystery. Three of the bodies were found in plantations; and in each of these cases suicide was assumed to be the cause of death. Why that conclusion was arrived at, no one can tell, except that, in one instance, the body was suspended by the neck. Of the other two, one was found alive on the roadside, apparently not well, while shortly before he had been seen quite well in the neighbouring toll-house. He was put into a barn, found dead in the morning, and buried without farther inquiry. Thus, in five years, in one small locality, 14 bodies are buried, and the cause of death in all, is unascertained!

Take one other example, and one too, which loudly calls for a remedy to be provided for the defective state of the law :—A married lady, during the absence of her husband, gave birth to a dead child, which could not be the offspring of her husband. Public report alleged the medical attendant of the family to be her paramour, and the servants of the establisment made no secret of the more than suspicious intercourse they had witnessed. The husband returned, and, in order, as was supposed, to obtain decisive evidence of his wife's guilt, he continued to occupy the same house, though he never slept with her. Meanwhile the medical man continued to attend the lady, and resided very much in the house, and people did not hesitate to predict that, if the lady should again become pregnant, her husband's life would not be a long one. After many months, the husband took suddenly ill and died, exhibiting all the symptoms of having been poisoned. The indignation of the whole district was roused; hand-bills were stuck up in all public places, charging the adulteress and her paramour with the murder of the deceased, and calling on the legal authorities to investigate the case. A neighbouring magistrate sent one of those hand-bills to the procurator-fiscal of the county, with a letter urging him to have a *post mortem* examination, and to investigate the cause of death. That functionary replied that he was aware of the reports that were abroad, but that he did not consider himself bound to investigate the matter, unless he was asked to do so by the nearest relatives of the deceased[1] (these being the lady! her father, and brother). No investigation took place. Immediately after the funeral the lady announced that she was pregnant, and in due time was delivered of a child. She continued to live in the mansion-house till she produced another child, confessedly to the medical attendant, who finally deserted his own wife and family, and removed with the widow to a distant part of Scotland, where they lived together till a few years ago, when he died.

The crime of concealment of pregnancy, leading as it too frequently does, to that of child-murder, is far more frequent than is generally believed, and, in comparison to the frequency of the crime, is seldom punished. Indeed, amongst the lower orders it is hardly regarded as a crime at all; and even in the higher ranks there are but too many who do not scruple to use means to get rid of the conception when illegitimately pregnant. In March 1853, a regular establishment was detected in London for the systematic destruction of infant life, under the name of "premature confinement," which never terminated successfully for the child.[2]

In December 1844, Mrs H. called for me, to say, that her neighbour, Mrs D., who had been a widow for two years, had lately been pregnant, and that, as she now appeared to have been delivered, and as the child was not forthcoming, child-murder was strongly suspected. I had good reason to believe the report to be well-founded, and communicated the case to the procurator-fiscal. He gave me a warrant to examine the woman, and report to him. I found all the usual appearances of a woman recently delivered: the mammæ were filled with milk, the belly was loose and pendulous, the uterus large, with the os open and dilateable, and there was an abundant lochial discharge. She strenuously denied having been pregnant, and I committed her to the custody of the constable, for the night. She sent for me in the evening, to say that she now thought she must have been pregnant, and must have miscarried at a very early period, as "no formation was visible." She was sent to prison in Edinburgh, and I reported that she had been recently delivered of a child. A few days thereafter I was informed that, after the time of the presumed birth, Mrs D. had been seen with a large parcel at the house of the reputed father, and that he had borrowed a spade from one of his neighbours, on the same evening. Acting upon such information, I sent the constable to him to demand where the child was buried. The man was thrown completely of his guard, thinking Mrs D. had told all, and he conducted the constable to the spot, where a full-grown child was disinterred. Dr Traill and I were appointed to make a *post mortem* examination, when we found the following appearances:—The mouth and nostrils were occluded by a thick piece of cotton cloth, firmly bound over the face, and secured by bandages tied tightly round the neck, so as to produce a blackish and congested mark under the knots. On the front of the trachea there was an ecchymosed spot; the umbilical cord had been divided with a sharp instrument, but not tied. After a minute and careful examination of the body, we certified that the child had been born alive, and at the full period, and of course reported all the particular appearances, etc., etc. In this case every link of evidence was taken with the greatest care, and a chain of proof obtained apparently amply sufficient (at least to a mind unaccustomed to the intricacies of legal lore) to convict for concealment of pregnancy, if not for the more serious crime of child-murder. The woman was not even brought to trial, and on her return home confessed to her neighbours the preceding facts.

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[1] I have known the same reply given by others in very suspicious circumstances.

[2] Granville on "Sudden Death," p. 183.

A lady overheard a discussion amongst her female servants as to whether it is better to have a natural child in the town or in the country. The case was deliberately argued, and they came to the conclusion that a child was more easily disposed of in towns. It is melancholy to contemplate such a state of society, and to know that no attempt is made to apply an effective check.

But, leaving the legal, and turning to the medical profession, a very unpleasant duty devolves upon me, from the discharge of which I would gladly refrain. It is painful to reveal the shortcomings of some unguarded, if not unworthy, brethren; but the interests of truth and morality compel me to speak out. There are few practitioners who are not able to recal some instance of apparent disregard of human life on the part of others, or such malpractices as should demand investigation; and the profession could well spare those who would shrink from a searching and effective inquiry into the cause of death in any case. I have already recorded one where a medical man was implicated, and will content myself by relating another, from among *many*, equally attended with most culpable circumstances. A lady was pregnant several months before her marriage. To conceal the fact, and for other reasons, she secured the services of a medical practitioner from a considerable distance. At her confinement, under the influence of chloroform, an unusually large quantity was used, and no one was present with the medical man, save the lady's husband. After the birth of the child, the medical man left his patient, who never rallied. She died in a short time, whether from flooding or from the effect of chloroform is unknown. The child, unwashed and undressed, was carried off by the medical man to a distance of 15 miles. There it was given out to nurse, and died in a few hours. No effective inquiry was ever made, and the relatives of the lady did not even know that she had given birth to a child, until after her funeral!

I cannot resist adducing one other case, in which both the legal and the medical men were outwitted:—A new-born child, wrapped up in an apron, was found in a well, where it had lain for several days. The clergyman of the parish and the parochial inspector, on their own responsibility, ordered a surgeon to examine the body. The procurator-fiscal thereafter ordered another practitioner to re-examine and report, and a certificate was given that the child was born alive. Public rumour fixed upon a girl in a neighbouring village, as the mother, and she was given to understand that she must go to the procurator-fiscal to be examined. She brought a younger sister from a distance of 36 miles, and presented herself to the legal authorities sooner than had been anticipated, anxious, as she said, to have her character cleared without loss of time. A medical man, who was altogether unacquainted with the girl (not he who examined the child), was desired by the authorities to examine her and report. The culprit cleverly persuaded her younger sister to submit to the examination—she was examined accordingly, and certified to be a virgin!

It is always more easy to find fault than to suggest a remedy. Still, as the foregoing observations have clearly shown, though not at all so fully as I might have shown, the great disadvantage our country labours under, in having no effective court of inquiry in cases of death under suspicious or mysterious circumstances; and as through this defect many culprits escape justice, and much indirect encouragement is given to crime—it behoves us, as watchful guardians of the health and lives of our fellow-countrymen, to lift up our united voices against the continuance of such a state of matters, and to call upon the legislature to remedy the defects of which we complain. Dr Granville of London, in a letter addressed to me on the subject of the coroner, advises the appointment of a barrister as coroner, assisted by a medical superintendent, a physician of long standing, and not in practice, whose special duty it would be to make a *post-*

mortem examination, and to examine witnesses on all questions concerning the health, treatment, and cause of death, of the deceased. This is most obviously a good suggestion for the improvement of the English coroner's court; but inasmuch as we have no such court in Scotland, it does not apply to us.

Several methods, as applicable to Scotland, might be suggested. The plan pursued in our East Indian Possessions, of invariably having a medical adviser, is most excellent, and merits consideration. Another method has been suggested, viz., making it imperative, that in all cases of sudden death, or death under suspicious or extraordinary circumstances, if any legally qualified medical practitioner shall refuse to certify, in writing, the cause of death, on the ground that he considers it to have been attended with circumstances demanding investigation, it shall be the registrar's duty immediately to transmit that refusal to the procurator-fiscal, and call upon him to investigate the cause of death before it is inserted in the register. One of the requisites of the registry ought to be to show *the cause of death*. The attending expense should be defrayed by the crown. The chief objection to both of these plans is, that a medical man may be required to advise and give a certificate in the case of his own patient; which, for obvious reasons, as I have shown, is sometime not desirable, to say the least of it.

As far as the prosecution of a case, after evidence has been obtained, is concerned, the practice in Scotland, if effectively carried out, seems to be unexceptionable;[1] but in doubtful cases, the law authorities very rarely sanction a *post mortem* examination, and yet seem to expect medical men to give an opinion—the data for which they are prevented from obtaining, and that apparently for no other reason than an ill-judged parsimony. I regard a certificate as to the cause of death, obtained from a mere external inspection, or "view" of the body, in the vast majority, if not in all cases, as utterly worthless, except as simply to testify the fact of death; yet such certificates are asked for by the legal authorities, and, I understand, sometimes even granted by medical men.

As the most obvious method of improving this state of matters, however impracticable at the first blush it may appear, I would suggest for serious consideration, the appointment, under government, of certain qualified medical practitioners, not in practice, to particular districts; the registrar to report every case of death to such medical inspector, under a penalty. It should be his duty, in all cases of sudden death, or death under suspicious or extraordinary circumstances, or even from preventable causes, to make a careful examination into every particular, directly or indirectly bearing upon the cause of death. Having examined the body, and described in writing, the result of his inquiries, he should then transmit the case, with his opinion thereon, to the proper legal authorities, who ought to be empowered, if they see fit, to consult any other medical man of eminence in the particular department of medicine or surgery to which the case may belong. The medical inspector ought also to investigate all sanitary measures in his district, with all preventable causes of disease of whatever kind, and to be empowered summarily to order the removal of nuisances, etc.

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[1] Dr Lonsdale of Carlisle, while giving credit to the "*crowner's quest law,*" in clearing up many unaccountable deaths, which, in Scotland, would escape "the precognition," yet admits, that the sheriff sifts everything to the bottom, *when a case is taken up,* and holds up Scotland as an example to England in in that respect. Lawyers tell us that the Scotch practice is superior in every respect to that of England,—if so, why is it not acted upon, and effectively carried out? But the want of the medical element in both countries is an evil requiring remedy.

It might be supposed that the recent Registration Act would prove in some measure a check to crime; and to some very small extent perhaps it may. But when it is considered that, beyond giving certificates of the cause of death in their own patients, medical men, as a body, have nothing to do with the carrying out of the Act —when it is considered that the registry of "found dead," or "cause of death unknown," may be just as complete a burial of suspicions in the books of the registrar, as it formerly was in those of the parochial inspector; and, moreover, when it is known that it is no part of the duty of the registrar to determine whether the certificate of the cause of death is satisfactory or not, provided it be drawn out in the form prescribed by the statute, and on the printed schedule, —it will be seen that the recent Act provides no present remedy for our ascertained wants; though, if the medical inspector were *ex officio* registrar for the district, it might be made an efficient aid to him in the discharge of his duties.

May I venture to indulge the hope, that some professional brother of eminence, with more influence than I can pretend to possess, will take up the question, and endeavour to have it brought before the legislature in such a form as to insure its receiving the attention which its importance demands.

ARTICLE IV.—*Case of Femoral Hernia, containing the Caput Cœcum, and complicated with an Irregular Obturator Artery surrounding and constricting the Protrusion.* By JAMES SPENCE, F.R.C.S., Lecturer on Surgery, and Surgeon to the Royal Infirmary, Edinburgh.

IN the history of this case I have purposely been most particular in detailing minutely every point connected with the operation, so that the practice resorted to, the reasons for its adoption, and the remarks which follow, may be perfectly understood.

Archibald H—, æt. 49, the subject of the present communication, had been under treatment in the medical wards of the Infirmary for some time, on account of severe chronic bronchitis, and skin disease. He had suffered from femoral hernia for many years, which he had always hitherto been able to reduce by taxis, although often with considerable difficulty. On the evening of the 17th of March, I was requested by the resident physician to see the patient, as the hernia had come down suddenly about six hours previously, during a fit of coughing, was of larger size than usual, and had resisted the efforts made to reduce it, whilst vomiting, pain and tension in the swelling had supervened. The resident physician informed me that he had tried the taxis as on former occasions, and that failing, it had also been fully tried whilst the patient was under chloroform by one of the resident surgeons, but without success; I learnt, moreover, that the patient had been making constant but unavailing efforts to reduce it himself. I found him vomiting, complaining of pain in the abdomen, and with an anxious expression of countenance. The hernia, which was a femoral one, about the size of an orange, was tense, and painful on pressure. I had him put under the influence of chloroform, and judging from the state of the swelling and the previous efforts for reduction, that it would be better not to persist too much in the taxis, merely made a slight trial, and failing in this, proceeded to operate. I divided the integuments over the hernia, as I usually do, by a T incision, but owing to the depth of the fat, and the bulk of the tumour, converted it into a crucial incision, to gain more room. The superficial fascia having been divided so as to expose the tumour, it was seen to be of a somewhat irregular form on the surface. On drawing the body of the swelling downwards, the falciform edge was seen, with the neck of the hernia very deeply situated. The fasciæ immediately covering the sac were next cautiously cut through, and a small flat director was insinuated *beneath the margin of the falciform edge, which was notched with the bistoury sufficiently to enable me to use the point of my finger, to guide the knife in dividing the deeper constriction.* On pressing my finger upwards, I became sensible of the indistinct pulsation of a vessel close to the constriction, and, therefore, only made a very slight notch upwards and inwards, and another directly upwards, so as to divide the stricture at two points of its circumference. This enabled me to get the point of my finger so far below the crural arch as to push the vessel upwards and divide the arch to a sufficient extent to allow of the reduction of an ordinary hernia. I then scratched through a few fibres lying immediately on the neck of the sac, and attempted reduction without opening it, but unsuccessfully. I made the less effort to do this, as the hernial contents, as seen through the thin sac, seemed exceedingly dark and tense. I, therefore, opened the sac, and gave vent to a quantity of dark bloody serum, and exposed a portion of intestine (the cœcum), tense, and almost black from ecchymosis. Anxious to avoid, as far as possible, any further pressure on the bowel, I again enlarged the division of the ring sufficiently to enable me to introduce my finger, and also to draw down and examine the portion of intestine immediately above the stricture: I now found the contents of the sac to consist of the cœcum and the lower portion of the ileum; the latter was at once easily reduced, but the cœcum, from its form and connections, could not be so readily returned, and as, on examining it, I found a small portion of its peritoneal and muscular coats had been lacerated by the attempts at taxis, I thought it safest to make a still freer opening by dividing Poupart's ligament completely. With this view the chord was drawn upwards with a blunt hook, and I carefully dissected through the lower part of the tendon of the external oblique in a line corresponding to the centre of the femoral ring. Having fairly divided the superimposed textures, I found that there was still some constriction higher up preventing the gut being returned, and which kept it tense. On passing my finger up, I felt a tight cordlike substance encircling the hernia external to the sac, and recollecting the vessel I had felt pulsating, I at once concluded this must be the irregular obturator, whilst from the bulk, distension and state of the protruded gut, it was equally evident this constricting cord must be divided to permit safe reduction. Accordingly, keeping the finger of my left hand within the sac, as a guide to the constricting vessel, I used the forefinger of my right hand so as to hook it down, and brought it distinctly into view. The vessel was tied with two ligatures, and divided between them, the gut reduced, and the wound dressed and bandaged in the usual way.

I ordered an opiate to be given, and directed leeches to be applied at once, in case any symptoms of peritonitis supervened. Next day the pulse had risen to 120, and there was pain in the abdomen, and vomiting. Fifteen leeches were applied, and a pill, composed of 2 grs. of calomel and ½ gr. of opium, was given every four hours. On the 20th, the abdominal tenderness and the vomiting were less, but as the bowels had not yet been moved, an assafœtida enema was administered, this produced no satisfactory evacuations; a large distending enema on the 21st also failed to open the bowels, a dose of castor oil was therefore given on the evening of the 22d, and, on the morning of the 23d, after another large enema of warm water, a very considerable fœculent evacuation took place, with great relief. On the 24th, his general appearance was better, the pulse had fallen to 100, and the abdominal tenderness now complained of was confined to the lower part of the abdomen, and evidently due to inflammation, and threatened suppuration in the abdominal parietes. He could retain food without vomiting, and was ordered chicken soup and some port wine. He was weaker and restless on the 26th. There was considerable pain and tension at one part of the abdominal parietes, and it was thought advisable to make an incision, in case of purulent matter being confined; but the incision, though carried deeply, did not open any purulent collection. A poultice was directed to be applied. The patient continued much the same till towards the morning of the 27th, when he became worse, sunk rather suddenly, and died at 11 a.m.

Post-mortem Examination.—On opening the abdomen, there were found the marks of acute peritonitis, but in a great measure limited to the right iliac and pelvic regions; lymph was effused upon the surface of the intestines, and there was a small quantity of turbid serum in the pelvis. The cœcum had regained nearly its normal position and appearance, retaining only slight traces of ecchymosis; the abraded part of its peritoneal and muscular coats, however, was as distinct as when first seen during the operation, and no attempts at plastic reparation seemed to have taken place; the lower parts of the ileum were also free, except a portion about three inches in length, which was thickened, and adherent to the parietal peritoneum in the neighbourhood of the wound.

Before making any further dissection, I inserted a pipe into the right common iliac artery, and threw in some injection to distend the vessels, so as to be able to examine them more carefully afterwards.

On examining the swollen parts of the abdominal parietes, the muscular tissue was found generally thickened, and of a dense brawn-like consistence; whilst the substance of the rectus and oblique muscles was studded with numerous small collections of pus of a dirty grey colour, and which seemed infiltrated into their texture, not escaping readily when the collections were opened. There was also a considerable diffuse abscess in the sub-peritoneal cellular tissue on the right side of the bladder, at some distance from the wound. The parts more immediately concerned in the operation, were removed for further examination.

On careful dissection, I found, as might have been expected from the lapse of time, that the parts were considerably matted by plastic effusion. On dissecting from without, I found the whole of the falciform process, together with the lower border of the tendon of the external oblique, fairly divided, and the spermatic cord and its investments laid bare, leaving even yet, after the contraction consequent on the healing process, a very free opening.

Dissecting from within, I found the epigastric artery of a large size, and the obturator arising from it; this latter vessel was obliterated to some extent, and diminished in size from the effects of the ligature. The ligature on its proximal end had not separated, that on the distal end had; but the injection had entered the distal portion by the anastomosing vessels, so that the course of the artery round the opening through which the hernia passed, can be readily traced in the preparation; a sketch of which is subjoined. It arises from the epigastric before that vessel has ascended on the parietes, creeps slightly upwards on the outer side of the femoral ring, then curves closely around its upper border, and finally descends along its inner side to gain the obturator foramen, so as to encircle the opening at all points available for division with the knife.

I learn from Mr Edwards, one of the demonstrators in the University, that the artery was also irregular on the opposite side,—where the epigastric arose from the common femoral, passed upwards in front of the femoral vein, and, on reaching the abdominal parietes, gave off the obturator so as to surround the upper part of the crural ring; unfortunately, however, the dissection has not been preserved.

Remarks.—This case is, I believe, unique in one respect, being, as far as I can learn, the only one in which the presence of the artery has been ascertained during the operation, and avoided in incising the ordinary seat of constriction; whilst its ligature and division were ultimately necessitated, from the vessel itself being the obstacle to reduction.

But I think it principally worthy of being detailed, as it seems to me to show practically, that, in cases of femoral hernia, where the irregular vessel exists, its presence may be ascertained, and the constricting portion of the crural ring may be sufficiently divided to admit of reduction, without wounding the irregular vessel, if certain precautions be adopted; and, secondly, when complications may necessitate or endanger its division, it shows that the vessel may be tied, and what the plan of procedure in such cases ought to be.

First, then, as to the risk and chance of avoiding injury in ordinary cases of femoral hernia.

I will not enter into anatomical details further than to say that there are three different positions in which we find the obturator artery placed, in relation to the femoral ring, when it arises by a common trunk with the epigastric—viz., 1*st*, Descending closely applied upon the external iliac vein, to reach the obturator foramen, and hence lying to the outside of, or behind and to the outside of a femoral hernia, and therefore out of all risk of injury during the operation. 2*d*, Passing down from the epigastric towards the obturator foramen—further removed from the vein, so as to divide the femoral ring into two sections, in which case it might be either pushed aside, or stretched in front of a hernial protrusion, or, as in a case described by the late Mr Allan Burns, have two small hernial protrusions, one on either side of it. 3*d*, The artery arising from the epigastric passes upwards, then curves round the upper, and descends along the inner margin of the femoral ring to gain the obturator foramen, so as to encircle a hernia passing out at the femoral opening, in all the directions available for incision. It

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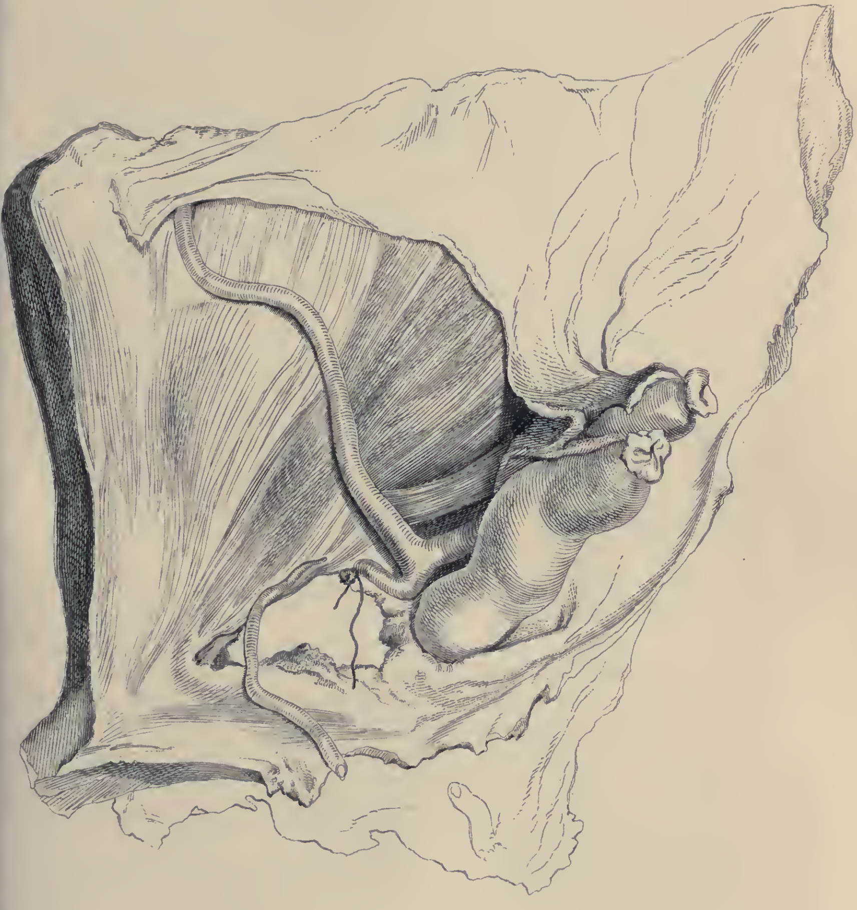

Mr. Spence's case of Hernia.

is to this last irregularity I would at present direct attention. As regards the statistics of this form of irregularity, there is considerable discrepancy, some authorities, as Mr Quain, stating it at nearly 1 in 10; Velpeau, 1 in 15; and Monro, 1 in 20 or 25. It is evident, however, that practically, no matter how rare or frequent such an irregularity may be, the surgeon can never predicate in what case he may meet with it, and is therefore bound to act in every case with the same caution as if it might be present.[1]

This arterial irregularity, as coincident with a femoral hernia, must be, of course, still more rare, yet there are several such cases on record.

There is a preparation in the Barclayan department of the Museum of the Edinburgh College of Surgeons, showing such a coincidence; and the late Mr Liston had one in his museum.

In at least two cases the artery has been wounded during the operation for strangulated femoral hernia: once in a case operated on by Baron Dupuytren, where its division was only discovered after the patient's death from other causes. The other case occurred to Mr Skey of St Bartholomew's; in it the bleeding was profuse at the time, the lower end of the artery was tied, the upper could not be secured, but bleeding was arrested by other means, for the patient only died some days afterwards, from the effects of a drastic purgative, given by mistake. Lastly, in a case which occurred to the late Dr Richard Mackenzie, it was found, on the patient's death some weeks after the operation, that the irregular obturator had encircled the neck of the sac, but had escaped division.

Now, these cases show both that the artery has been accidentally cut, and accidentally avoided; but the case I have recorded goes a step further, for it shows that the surgeon, by proceeding cautiously, and feeling with the pulp of his finger, before dividing the constriction formed by the deeper or higher portion of the crural arch, may detect the presence of the irregular vessel, and then, by cautiously notching the constriction, to a very slight extent, at two points of its circumference, he will gain room sufficient to enable him, either with his nail or the point of a small flat director, to push the artery out of the way, while he divides the stricture more fully.

By following this plan, I was enabled to relieve the constriction, so far as to draw down and examine the intestines contained in the sac, and readily to reduce the portion of the ileum, so that, under ordinary circumstances, no further incision would have been necessary, and the vessel would have remained intact.

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[1] Perhaps the practical value of acting on this principle will be best illustrated when I state that, having devoted very considerable attention to the anatomy of femoral hernia, and made more than two hundred special dissections of the region, I never met with the irregular obturator in such a position as to encircle the femoral ring in any of my own dissections, nor in any dissection occurring in the practical rooms under my care, during ten years when I taught anatomy: and the first instance in which I have encountered it was in this case, whilst operating.

Of course, if the operator holds the opinion that the whole thickness of the crural arch, including Poupart's ligament, ought to be divided in every case, then the irregular vessel runs a much greater risk, than if he limits his incision to the division of that portion of the arch formed by the convergence of the abdominal fasciæ, below Poupart's ligament, which immediately constricts the sac, and which is all that I have almost ever found it necessary to divide in cases of femoral hernia.

Secondly. The case, however, shows that certain complications, occurring in a femoral hernia where the irregular obturator artery was present, might render it necessary to divide the surrounding textures so freely, for the purpose of reducing the protrusion, that there would be very great risk of wounding the vessel; or that, from the artery tightly surrounding the protrusion, it might absolutely require to be divided, as itself an obstacle to reduction: And this leads us to the consideration of what these complications are, and how such difficulties may be best met and overcome.

Though I have mentioned the irregularity of the obturator artery as being an obvious and serious complication in the case, it was by no means that which gave rise to the greatest difficulty;—indeed, from my remarks under the first head, it may be seen that I hold that, except for the other conditions of the hernia, the irregular vessel would not have given rise to much difficulty, or been in much danger of being wounded.

The real difficulties which complicated the operation were, I think, the bulky and irregular form of the protruded cœcum; its comparatively fixed position, by its peritoneal attachments, near the site of the femoral opening; and its posterior cellular connections, not allowing it to slip back like portions of the floating intestine; and last, not least, the state of the bowel from the previous attempts at the taxis, forbidding all further pressure or manipulation that could possibly be avoided.

The form and connections of the cœcum always render its reduction slow and gradual, even under more favourable circumstances, where the bowel can safely bear moderate compression, and where the constricting textures have been very freely divided,—as I found in a case of inguinal cœcal hernia, on which I operated some months ago, where there was no limitation to making the incision of the constriction very free indeed; and I have also seen the same difficulty, though to a much less degree, in cases where the sigmoid flexure of the colon formed the contents of inguinal herniæ. In femoral hernia, however, where our incisions must, in general, be much more limited, and, especially, when we have ascertained the presence of an irregular artery round the upper part of the ring, the causes of difficulty I have alluded to become very embarrassing, and require us to adopt great caution in dividing the constricting textures; indeed, it was the eccentric pressure of the bulky distended gut, which brought it into contact with structures which do not ordinarily form the seat of stricture, and in this way the irregular artery, dragged and stretched to the utmost by the distended portion of the cœcum, had come to form a cord-like constriction upon it, requiring division before the bowel could be returned.

As to the plan to be adopted in such cases of femoral hernia, requiring such free incisions to relieve the bowel, I can only say that, after much consideration of this case, I would still proceed to divide the superimposed textures by the same method,—viz., by dissecting cautiously through the lower division of the tendon of the external oblique, and the other textures, down to the peritoneum, in a line corresponding to the centre of the femoral ring, the chord being drawn aside. Thus all danger of wounding the artery accidentally is avoided, and if it be found itself constricting the swelling, it will not be found very difficult to bring it into view and put ligatures upon it.

Indeed, this plan is that which Sir Astley Cooper recommended as safest and best in all cases of large femoral hernia; and, although I cannot think, after some experience in femoral herniæ, that it is either necessary or advisable as a general plan, it will be found the safest in complicated cases requiring more than usually extensive incisions; it is, in fact, a cautious dissection down upon the upper part of the sac, or the parietal peritoneum immediately above, and continuous with it, and if carefully conducted, attended neither with difficulty nor danger.

ARTICLE V.—*On Synchronous, or Simultaneous Double Amputation.* By W. MARSDEN, M.D., Governor Col. Phys. and Surgeons of L. Canada, Fellow Montreal Pathological Soc., F. Berkshire, U.S., Med. Institute, and Medico-Bot. Soc. Lond., etc.

AT a time like the present any subject that may tend to mitigate the horrors of war, or soften the sufferings which it entails, must be received with favour. On looking over a late number of "Nelson's American Lancet,"[1] I find in it an article from the pen of Wolfred Nelson, M.D., of Montreal, entitled, "Simultaneous Procedure in Double Amputations," in which allusion is made to the proposal of Professor Carnochan, of the New York Medical College, "to convert the double amputation into one, by severing the limbs in immediate succession, as soon as the anæsthetic influence of chloroform is produced, when it becomes necessary to amputate two limbs."

My object, in the present communication, is twofold: First, to call the attention of the medical profession to the exercise or application of what I consider a decided improvement on the present surgical practice in double amputations; and, next, to establish the priority of claim to its application. The subject is one of considerable importance in our northern latitudes; where, from circumstances of climate, the necessity for double amputation is of not unfrequent occurrence. These remarks apply equally to the Crimea and the northern parts of Europe, where a vista of the future foreshadows a long and destructive war, with its consequences.

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[1] "American Lancet;" a Monthly Journal of Practical Medicine. By Horace Nelson, M.D., Plattsburg. March 1855, Vol. x., No. 6, p. 243.

The suggestion of Professor Carnochan, to sever the limbs in *immediate succession*, is not new, but has been frequently acted upon without chloroform. On this subject, the esteemed instructor of my early days, John F. South, says,[1] "When, as happens in very rare cases, that the amputation of two limbs is necessary, it is a point of great difficulty to determine what course is best to pursue. Cases have occured in which both limbs have been immediately removed, *one directly after the other*, or one immediately and the other some time after, and the patients have done well; whilst, on the other hand, these practices have been adopted, and the patients lost almost immediately after the operation or operations. These cases are beset with extreme danger, and it is next to impossible to give any positive directions on the subject, beyond employing the most careful attention to the patient's constitutional powers, before proceeding with one or other mode of practice. But it may be presumed, if after the first operation, the patient's powers seem declining, that the second operation would be deferred. Whilst, on the contrary, if he bore the first operation well, it would be encouragement to perform the second immediately, so as to put him in the best condition possible."

Dr Nelson, in his paper on this subject, says, "I was of opinion, many years ago, that when the terrible alternative is presented, both members should be removed simultaneously, and carried my views into effect in the case of a gentleman who had both hands and lower part of the forearms frozen so severely, that gangrene ensued. His constitution had suffered much from his exposure to intense cold during a whole night. A very able surgeon of this city was kind enough to amputate one arm, whilst I operated on the other, at the same time. Chloroform was resorted to, but entire anæsthesia could not be produced, and our patient was conscious during the operation, but complained of no pain. The business was soon over, and the cure sufficiently rapid."

After describing the operation, with remarks upon the relative advantages of the circular and flap operations, in which Dr N. says, "that a good deal of practice induces me to select the old, or circular method, in every instance," he thus concludes: "Whenever the unfortunate necessity for the severance of both legs occurs, I would by all means give the preference to simultaneous procedure, in order that the system may not be subjected to two distinct shocks."

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[1] "System of Surgery." By T. M. Chelius. Translated from the German, with additional Notes and Observations. By John F. South. 3 Vols., American edition. Philadelphia: Lea and Blanchard, 1847. Vol. i., p. 570.

From the tenor of Dr N.'s paper, it will be gathered that he is under the impression that his was "a maiden operation" of its kind. Such, however, was not the case. As he has omitted to give the date of his operation, I can only approximate time from his saying, "chloroform was resorted to," etc.

Synchronous double amputation was twice performed in one of the hospitals of this city *many years* before the use of chloroform was introduced. The claim to priority of operation belongs to my friend, Dr Morrin,[1] and not to Dr Nelson.

The first case in which the operation was performed was in the winter of 1831–32, on a shipwrecked sailor, who had been severely frost-bitten, and was a patient in the Hotel Dieu Hospital. Being of sound constitution, and in good bodily condition, and the urgency for amputation being equal in both limbs, Dr Morrin proposed the synchronous double operation, urging its expediency on his fellow-surgeons, in terms similar to those used by Dr Nelson. One of them, however, opposed and denounced the experiment as cruel and unheard of, and he refused to be present, even to witness the operation; but the other, the late Wm. Hall, M.R.C.S.L., concurring in Dr Morrin's views, the operation was performed with most triumphant results, among which, the comparatively small loss of blood was not the least, and the slight nervous shock, and rapid recovery of the patient.

The next case, of which I was a witness, was also at the Hotel Dieu, and, as the success of the former operation had been so unequivocal, the opposition of the gentleman before alluded to was converted into approbation; and Drs Jas. Parant and Jas. A. Sewell operated, and again with the most complete success. This was in March 1837, and the subject of it, whose name is Portugais, may be seen daily, under Dr Nelson's own eye, in the city of Montreal, riding in a dog-cart behind a couple of dogs—thanks to the benevolence of the municipal corporation, notwithstanding a bye-law to the contrary.

Drs Jas. Douglas and Sewell have since operated simultaneously at the Marine and Emigrant Hospital here; but I think I have said enough to rouse the attention of my professional brethren to the subject, and to show that the practice, as far as Quebec is concerned, is established.

My own experience and knowledge of the results of "Double Synchronous Amputation" prove that recovery after that operation is equally safe and certain, and *more rapid* than under the old system, if the patient is "otherwise in good health and heart whole." In the two first-mentioned cases neither opium, ether, nor any other anæsthetic was made use of; and yet the subjects did not seem to suffer more pain than in cases of single amputation. By removing both limbs at once, besides saving the double nervous shock, we save the time that is necessary for the patient to recover strength and tone to enable him to endure the second operation, and we avoid the nervous irritation that is frequently set up by the unamputated limb, to say nothing of the mental disquietude which the patient usually endures in anticipation of a second operation. The saving of the vital fluid, moreover, tends to the more speedy, as well as more complete, recovery of the patient, as very little, if any more blood is lost in the double amputation, than in *each* single one. In these views I am not singular, as all the gentlemen who have operated, or assisted at these operations, concur in my opinions.

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[1] Consulting Physician to the Hotel Dieu Hôpital, late President of the College of Physicians and Surgeons, L. Canada, and now the worthy and esteemed mayor of this city.

6, ANNE STREET, QUEBEC, 27th April 1855.

Part Second.

REVIEWS.

An Inquiry into the Statistics and Pathology of Some Points Connected with Abscess of the Liver, as met with in the East Indies. By E. J. WARING, Residency Surgeon at Travancore.

THE great Exhibition of 1851 brought us acquainted with many specimens of beautiful workmanship from our Indian possessions, but we do not remember among them any sample of typography. We have, however, received, in our editorial capacity, a most creditable proof, that while India has become a great nursery for our warriors, there is no neglect of the more peaceful arts!

The work placed at the head of this article is from the "Government Press, Trevandrum,"—not from the metropolis of one of our great Presidencies, but printed in a city of which, probably, most of our readers never heard—the capital of the Travancore country; the author being residency surgeon to this one of the few native courts remaining in the Madras Presidency. We are not, however, inclined to exhaust our approbation on the typographic merits of Mr Waring's work, for truly we feel much indebted to him for bringing into a compact form much valuable information on a subject of great interest, and we trust that he and his brethren will believe that we shall ever welcome any contribution likely to advance the interests of the science to which we are devoted.

Mr Waring's object is mainly pathological. He has, with great industry, collected and collated every case of abscess of the liver, the authentic records of which were within his reach. These amount to 350 cases. He gives the treatment, as far as detailed by his authorities, the autopsy, the results of surgical operations, and the modes by which spontaneous evacuation of the pus are effected; adding tables of the results, and some sensible practical observations.

It is a disadvantage that the term *hepatitis* should be applied indiscriminately to the *deep-seated* and to the *surface* inflammations of the liver. These hepatic affections differ in their symptoms, progress, and terminations, and call for totally different modes of treatment. An author[1] some years ago suggested that the terms "*puro-hepatitis*," and "*sero-hepatitis*," should be adopted to denote the distinguishing characteristics of the phases of hepatic inflammation. Mr Waring's work illustrates, very distinctly, the nature and effects of inflammation in the *substance* of the liver. A similar compilation of cases of acute inflammation on the *covering* of the organ, would prove equally interesting, and of more practical value. The disease of which he has treated is, we fear, beyond the reach of medicine: that to which we would now call his attention, is a seizure in which the life of the patient is in most cases, dependent on the skill and energy of the physician.

No mortal disease is more insidious in its onset, or more obscure in its symptoms, than the deep-seated inflammation of the liver; in almost every case narrated by Mr Waring, and there is a painful similarity in the three hundred histories of fatal cases,—the abscess had probably been formed before the patient came under treatment. Many of the patients continuing to perform military duty till within a few hours of their death from the bursting of the abscess, containing even several pints of pus;—or the patient dies without the experienced practitioner being able to detect a single symptom of abscess.

"No. 165.—S. Macdonald, of regular habits, admitted Sept. 1816, passing frequent muco-sanguineous stools, unattended by tenesmus or abdominal pain; he bore pressure without complaint, even over the liver; he had much vomiting, prostration of strength, and depression of spirits, with an increase of fever towards evening. Treatment not given.

"*Autopsy.*—A large abscess on the concave surface of the right lobe of the liver; colon and cæcum ulcerated."—*Annesley*, vol. ii., p. 227..

Or the symptoms, such as they are, of an abscess having been formed, may be masked by the more prominent characteristic symptoms of enteric disease.

"No. 44.—P. Kennedy, three years in India, a strong, robust, intemperate Irishman, admitted for the first time since he has been in India July 20, 1840, with severe pain in the abdomen, increased on pressure, particularly in the left hypochondrium, and in the course of the descending colon; frequent, scanty, watery stools, tinged with bile, but unmixed with blood; urgent tenesmus, and great irritability of the stomach. These symptoms continued unabated during the next two days, in spite of the most energetic treatment; it is not stated that he took mercury. On the 25th the pain and tenderness had greatly subsided, but the other symptoms remained. He now became much exhausted, with cold clammy perspirations, hectic debility, and a rapid pulse. He died on the 31st, eleven days after admission. There was no pain in the shoulder; indeed, with the exception of the cold perspirations, there was no evidence during life, of hepatic abscess.

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[1] H. Bell on the Liver, 1833.

"*Autopsy*—Serous effusion into the abdominal cavity; the liver enlarged, softened, and of a deep colour; it contained four abscesses, one in the left, and three in the right lobe; the total quantity of matter was about two pints. Gall-bladder full of green bile, mucous coat of the stomach vascular, and in some places softened; the small intestines natural; the colon thickly studded throughout its inner surface with ulcers of various sizes; and near the caput coli, they were large and close, and covered with coagulated blood; one had perforated the intestine."—*Dr W. Parry*, ibid, p. 139.

As dysentery almost invariably concurs with hepatic abscess, the sensitive state of the head of the colon is apt to mislead the examiner.

"No. 161.—J. Day, admitted May 27, 1817, with abdominal pain and dysentery; the symptoms of the latter were so severe as to mask, in a great measure, the existence of hepatic disease; he had no cold sweats, and there was no appearance of enlargement of the liver, nor was pain complained of till near death, when much fulness was perceptible in this region; mercury was given freely, but nothing beyond a tender state of the gums was induced. He died June 2.

Autopsy.—Liver much enlarged, with four abscesses in the right lobe, two on the convex surface, and a large one on the concave side; the latter had burst, and its contents escaped into the abdominal cavity; ulcerations in cæcum and rectum; small intestines thickened and white; heart enlarged, with white spots upon the right ventricle."—*Annesley*, vol. ii., p. 214.

In short, here are 350 cases of a common tropical disease, occurring under the eyes of the most painstaking medical men in the world, yet we rise from their perusal unable to say when, in most of them, the fatal lesion took place; to determine what symptoms, or set of symptoms, are to guide the diagnosis; nor unhappily, can we say what mode of life will give the European, residing within the tropics, most reason to hope that he shall escape the disease; for, although intemperance unquestionably is a predisposing cause, yet the most temperate habits do not, it would appear, exempt the European in India from hepatic abscess. Many cases corroborative of this might be cited from Mr Waring's compilation: a very interesting instance is afforded by the case of an eminent French traveller.

"No. 290.—M. Victor Jacquemont, the French traveller and philosopher. His case is principally interesting as showing that strictly abstemious habits are, *alone*, no protection to the supervention of hepatic abscess. No one could have been more temperate; for a long time he had left off the use of spirituous liquors, discarded animal food, and lived on nearly the same diet as the natives, only in smaller quantities. He took regular walking or riding exercise, morning and evening; but living, as he was obliged to do, principally in tents, he was exposed, particularly in the hot season, to extreme heat, and to great atmospherical changes. He was first attacked with dysentery, and irregular attacks of fever; hepatic abscess supervened, and he died at Bombay, Dec. 7, 1832, fifteen hours after the rupture of the abscess into the cavity of the peritoneum. No autopsy."—*Twining*, ibid, p. 326.

By far the most valuable portion of Mr Waring's work is that containing "a summary of 81 cases, in which the contents of the abscess were evacuated by operation"—the results, however, are not very encouraging. Out of 81 cases operated on, there are only 15 recoveries; less than one in five. Some important points, nevertheless, are established by our author's labours on this vital question. Of these, the most striking is the safety with which the substance of the liver may be punctured.

"Case IV. *Recovered.*—S. Wilks, æt. 35, admitted March 21, 1839—operated on March 30—trocar only employed—gave vent to 1 oz. of very black blood, without any admixture of pus—afforded great relief—trocar introduced a little more anteriorly; gave exit to more black blood, but no pus. On the 5th of April a long curved trocar (such as is used for puncturing the bladder, per rectum) was introduced, and gave vent to 4 oz. of sanio-purulent matter, to the great relief of the patient. The discharge having ceased, the long trocar was again introduced on the 11th, matter became healthy; ceased to flow on the 10th of May; returned to duty June 7; was in good health two months after that date."—*Surgeon Wilkins*, H.M. 45th Regt., ibid., p. 479.

Again, with reference to the exploratory needle, the same point is established.

"Case XXIII. *Recovered.*—J. Crampton, æt. 25, admitted June 10, 1840—no fluctuation perceptible—operated on June 14. Exploratory needle introduced its full length into the liver, an incision having been previously made with a lancet—no pus flowed—dossil of lint introduced into the wound, and a poultice applied—no bad symptom followed; on the contrary, the patient seemed to feel better. Seven days after, an elastic tumour presented itself, having the wound in its centre—a trocar was introduced, and 6 oz. of matter evacuated—canula left in situ—discharge continued up to Aug. 22—gradually recovered. Seven months after he was sent to England, convalescent. Not combined with dysentery. He is reported before starting as, "fat, but complaining of lameness and numbness in his right leg." The wound of the trocar was quite healed, but he suffered from uneasiness in his liver."—*Dr Sinclair*, ibid, vol. iii., p. 190.

"*First Case, Summary*, p. 182.—*Recovered.*—D. Derrick, H.M. 4th Regt., admitted Aug. 1839. On the 11th the exploratory needle was introduced posteriorly to the angle of, and between the 7th and 8th ribs, to the depth of 2½ inches, but without detecting pus. No inconvenience ensued from the puncture, and the second day after the operation the abscess apparently burst into the intestines, and he gradually recovered from that date. *He never experienced any bad symptoms from the introduction of the needle*; he thinks, on the contrary, that it rather did him good."—*Dr Mouat, Madras Med. Journal*, vol. ii., p. 226.

It is, we think, established that a successful result in opening an abscess of the liver, mainly depends on the operation being performed *early* in the course of the disease. Yet the insidiousness of the malady, and the uncertainty of the symptoms, are such that the anxious practitioner is left in great doubt as to the existence of an abscess, at the very moment when, if good is to be done, the time for operating has arrived. Here then, has Mr Waring presented us with 19 cases operated on, in which the liver was *explored,* without apparent injury, four of which recovered; of 6 cases in which the needle was used, without evacuation of the abscess by means of the operation, two recovered: and in those cases in which *post-mortem* examinations took place after the use of the exploratory needle, no evidence of injury was discovered.

There is, therefore, so far as these cases go, sufficient to justify the practitioner, in a case of suspicion, to resort to the exploratory needle.

The next point, pretty evident from Mr Waring's work is, that what is called *active treatment* is contra-indicated in hepatic abscess, viz., venesection, extensive topical bleedings, and large doses of calomel. The hope for the patient is strength to admit of the artificial, or spontaneous evacuation of the contents of the abscess.

Mr Waring has also allotted a section of his work to "Twenty-five cases of hepatic abscess which terminated in spontaneous recovery." In 10 of these the pus was discharged through the bronchi. In 7 it was passed by stool. In one case the discharge took place from both the intestines and the lungs.

"Case XXV. *Two abscesses, one opening into the colon and another into the lungs.* —Mr J. C. S. was attacked on Aug. 6, 1836, with acute hepatitis, for which he was actively treated; the urgent symptoms subsided, but it soon became evident that abscess in the liver had formed. The treatment was now simply palliative. On the 13th of Sept. he was sensible of something having given way within him, and he all at once felt himself relieved of the distressing symptoms from which he had been suffering—a considerable quantity of purulent matter was found in the stools, and this was observed for several days subsequently. It was evident that the abscess had burst into the colon. At the end of 10 or 12 days he became worse again, and all his old symptoms returned; slight hopes were entertained of his recovery. On the 4th of Oct., however, a change for the better commenced, and a large quantity of matter was discharged by expectoration; an abscess in the liver had evidently burst into the lungs. From this date he continued to get better, and six weeks afterwards (Nov. 22), the patient is reported as recovering rapidly.—*Dr T. B. Colledge, in Webb's Pathologia Indica,* p. 296.

We are not, nor does our author, seem inclined to give credence to the statement that, in three of those cases the abscess burst into the cavity of the abdomen! And we very much doubt "the elimination of the contents of the abscess by the kidneys," as is stated of two cases. Two cases also are said to have been cured "by spontaneous absorption of the matter."

It only remains that we should perform the pleasing duty of recommending, which we do most cordially, Mr Waring's work, to the student of tropical diseases. Especially to those whose talents may enable them to attain the honour of appointments to the East India Company's medical service, of which our author seems so deserving a member.

Pathological and Clinical Observations respecting Morbid Conditions of the Stomach. By C. HANDFIELD JONES, M.B., B.A. Cantab., F.R.C.P., F.R.S., Assistant-Physician to St Mary's Hospital. London, 1855. 8vo. Pp. 226.

THE minute anatomy of the gastric mucous membrane, as examined nearly twenty years ago by Dr Sprott Boyd, and as further elucidated by the exhaustive observations of Kölliker in later times, appears to present an attractive field for the investigations of the morbid anatomist. With the exception, however, of a few remarks by Frerichs, in his article on Digestion, in "Wagner's Handwörterbuch," we do not remember that any one, writing since the times of Louis, Carswell, Cruveilhier, and Rokitansky (which might be called, in Lord Derby's phraseology, the *pre-microscopic epoch* of pathology), has given to the world an account of the changes which the mucous membrane of the stomach undergoes in disease. We are, therefore, by no means surprised that a skilful and experienced anatomist like Dr Handfield Jones should, in addressing himself to this inquiry, and in giving to the world its results, claim to have "brought to light some facts with which we were before unacquainted." Our surprise (we may as well say so at once) is quite of an opposite kind; and with every desire to do justice to an investigation which has obviously been the result of no small labour, we fear that it will be difficult for us to persuade our readers that the present work is calculated to add to their knowledge in a degree at all proportionate to the extent of its plan, and the reputation of its author.

The volume before us is intended to contain, "in a more practical and acceptable form," the results of an inquiry submitted by the author to the Medico-Chirurgical Society. It has five highly-finished plates in lithography, and upwards of 200 pages of letterpress. It is divided into four chapters, of which one is anatomical, one physiological, one pathological, and one clinical. The work contains, moreover, the details of 60 cases, in recording which, the author has, certainly, not spared the labour of note-taking. We wish we could aver with truth, that the reading of these, or, indeed, of any of the parts of this work which distinguish it from the more scientific article in the Medico-Chirurgical Transactions, had been attended with pleasure; but we must honestly confess to have rarely encountered anything more flat and unprofitable than those chapters which the author has seen fit to add to his pathological observations, with the view of adapting them to the instruction of practical men. As average specimens of the class in question, we beg to assure Dr Handfield Jones, that the way to reach our ears and understandings, is not to spin out unimportant details, or to decant the contents of his note-book into one chapter, while he works up another out of materials contained in every elementary text-book. We demand to have the midnight oil bestowed, not in multiplying words, but in retrenching them—not in reiterating ideas, but in condensing them into the most clear and brief practical expressions of which they are susceptible. Of the cases which occupy so large a part of this volume, indeed, we do not profess to have found time to peruse more than a fraction. After plodding through many pages of very ordinary cases of indigestion, met by very ordinary prescriptions—(the most remarkable is one which frequently occurs, in which *nitrate of silver* is ordered in conjunction with *tannin*, to the great detriment, we should think, of the activity of both substances)—we gave the clinical department of the book up in despair. We beg, therefore, to decline the responsibility of stating, as reviewers, the practical truths which the author has left to be gathered from this chaotic heap of evidence; and if we shall appear not to have done him justice in not reading the whole of his work, we must remind him that (as Sydney Smith used to say) human life is shortened since the flood, and that, if he wishes to be read, he must of necessity forego this vicious style of writing, and endeavour to meet us half-way, by getting his ideas into a somewhat more moderate compass and less desultory form.

Of Chapters I. and II. we shall have little to say. The former commences with the rather elementary information that the stomach "is situate in the upper part of the abdomen, occupying the left hypochondrium and the epigastrium;" and after a good many pages of what might be expected to follow such a beginning, we arrive at a description in detail of the mucous membrane, evidently from personal observations, but containing little which may not be found more shortly and quite as clearly described elsewhere. The author considers the solitary glands, which exist in small numbers in the mucous membrane of the stomach, as being superfluous structures, indeed worse than superfluous, for he hints that they are "imperfections, and, it may be, foci of diseased action."—P. 21. He does not tell us how he came to adopt this rather extraordinary, and, we think, unreasonable conviction. Chapter II. contains an account of the physiology of digestion, and is for the most part a compilation, by no means of surpassing excellence. The author has repeated the experiment of Bidder and Schmidt, by which it is shown that the intestinal fluid, apart from the gastric, pancreatic, and hepatic secretions, has a certain power of acting on albuminous substances.

In Chapter III. the morbid conditions of the stomach are described.

Passive congestion is described as common in its slighter degrees, but rare in its extreme forms. The line between morbid and normal congestion is not drawn with more distinctness than by previous authors; and, notwithstanding six cases narrated with considerable detail, little or nothing seems added to the clinical history of this affection.

Inflammation of the stomach is divided into *catarrh* and *gastritis*.

The former, confined to the mucous surface, is shown by exuberance of mucous secretion, with distension, and sometimes rupture, of the capillary vessels. We are by no means disposed to admit that, in this case, any more than in that of congestion, the author has been successful in separating normal from diseased conditions, the more so, as he says that the ultimate structure of the mucous membrane is commonly unaffected. The fact that he found gastric catarrh in 23 out of 100 cases taken at random, and dying of all diseases, shows pretty clearly, we think, that the clinical importance of catarrh in this sense is small. The author does not appear to believe, with Huss, Rokitansky, and Beaumont, that spirit-drinking predisposes to catarrh. True gastritis, the author, like most other pathological authorities, considers to be rare.

Hypertrophy and atrophy of the solitary glands is usually unattended by dyspeptic symptoms, or by any manifest and characteristic phenomena. The pathological relations of the affection, too, are involved in all the obscurity which is the result of the slight knowledge we have of the normal condition of those structures. Hypertrophy "is of the nature of an interstitial growth, spreading among the proper elements of the tissue, and inducing their atrophy. It is generally combined with more or less of fibroid stroma, which, in allied instances, comes to predominate."—P. 99. Hypertrophy appears to be, according to the author, more frequent than atrophy.

"*Atrophy of the glandular tubes, with varying amount of fibroid formation.*—There is a group of instances of atrophic change, not well defined, but which it yet seems fit to separate from the foregoing, in which great destruction of the tubes of the mucous membrane occurs. They are, for the most part, replaced by a fibroid or granular matter, much less loaded with nuclei than the new-formed tissue in the class lately described."—P. 106. We here present the reader with literally the entire clinical and pathological history of this form of disease; for the cases given, and the few speculations which follow, throw no additional light upon the subject.

Mammillation of the mucous membrane, to which so much importance has been attached by French authors, would appear, according to the statements of Kölliker, as well as those of Dr Jones, to be quite compatible with a healthy condition of all the structures involved in the mucous membrane. It appears to depend upon a certain state of contraction of the corium or body of the membrane.

Ulceration.—Dr Handfield Jones has not been able to confirm the statements frequently made, that ulcers of the stomach are more frequent in females, and especially young unmarried females, than in males. Two out of eight cases only were females, and none of them were under 48 years of age. Rokitansky also finds that more cases of ulceration occur above 50 than below 30 years of age.

Changes in the epithelial contents of the tubes. Those observed were—1. Fatty degeneration; 2. Simple wasting; 3. Black discoloration. It does not appear that these conditions accompany any particular forms of disease; and no data exist sufficiently precise to fix either their chemical or pathological significance.

Softening of the Stomach.—On this much-canvassed subject there is nothing new.

Fibroid thickening of the Stomach, formerly supposed to be a cancerous lesion (schirrus), and probably in some instances dependent on cancerous disease of the mucous membrane, though sometimes not so, receives no additional elucidation. The same may be said of

Cancerous disease, the last morbid condition mentioned.

From this short analysis of the third chapter—including, however, short as it is, almost every suggestion which can be conceived to bear, however remotely, on practice—it will be seen that Dr Handfield Jones is not, as yet, in a position to make any very important clinical application of his researches. His gastric pathology is still a pathology of the dead-house and dissecting-table only; and so far as we can see, he has not as yet succeeded in establishing, to any considerable extent, its relations either with the physiology of digestion, or with the symptomatic disturbances which constitute the study of the practitioner. We do not indicate this failure as being in itself any reproach—on the contrary, we believe that it arises in great part from the nature of the subject; and had Dr Handfield Jones contented himself with a modest statement of facts observed, and conclusions cautiously deduced therefrom, in the field of morbid anatomy, he would not have had the trouble of writing so long a book, and we, on the other hand, would have had nothing to do but to give an account of his labours, and to praise the industry and the good faith which led him to cast his mite into the treasury of universal truth, in the hope that it would not be found ultimately wanting in useful results. But, by inflicting on us and on his readers, the wearisome iteration of commonplaces which for the most part occupies Chapter IV., Dr Handfield Jones compels us to pronounce judgment on the practical character of his work; and it is impossible to overlook, in this point of view, the want of connection between the physiology and the pathology, and between the latter and the practice or the diagnosis expounded by the author. We make these remarks, however, subject to the admission that Dr Jones may very possibly have done injustice to his own argument, and to his own knowledge, by such an elaborate display of cases leading to nothing, as may have hidden from our notice some of greater interest and more decisive character. If so, we trust he will not fail to take an early opportunity of cancelling our erroneous impressions, by communicating to the public a short and clearly connected view of the strictly practical results of his labours, as regards diagnosis and treatment, with only so much of clinical narrative as serves to place beyond doubt the positions which he believes that he has established. As it is, we are bound to pronounce this treatise an unsatisfactory one; and we regret that it should be so, coming, as it does, from the pen of one whose honest and earnest labours in science we have at all times been most anxious to acknowledge.

We must not forget to note, that some of the most important facts in the volume occur in a short Appendix, in which a number of experiments on vomited matter are recorded. In 20 cases in the human subject, and in some additional experiments with the gastric fluids in the pig and rabbit, it was found that free hydrochloric acid existed in the majority of cases in minute quantity, in a few in larger quantity, while, in about a third of the whole, no trace could be found. There was nothing in either the negative or the affirmative instances to explain the difference. From experiments by Bernard and Barreswil, however, repeated by Dr Handfield Jones, it appears that lactic acid has the power of decomposing chlorides, and liberating their acid; so that it is, after all, very uncertain if the alleged free hydrochloric acid of the gastric juice be not an accidental educt, depending on the action of lactic acid on the chlorides either of the food or of the gastric secretion, or of both together.

1. *A Treatise on the Action of Medicines in the System.* By Frederick William Headland, M.B., etc. 2d Edition. 8vo. London, 1855.
2. *The Essentials of the Materia Medica, Therapeutics, and the Pharmacopœia. For the use of Students and Practitioners.* By Alfred Baring Garrod, M.D., Professor of Materia Medica, etc., London University College. 12mo. London, 1855.
3. *A Manual of Practical Therapeutics, considered chiefly with reference to Articles of the Materia Medica.* By Edward John Waring, M.R.C.S.L., Hon. East India Company's Service.

It is impossible for us to enter upon a detailed examination of the three works which we have here classed together for the purpose of bringing them under the notice of our readers. Each may be said to represent a separate method of treating that department of medical instruction embraced under the title of Materia Medica. Dr Garrod, though by no means restricting himself to this, gives us a short account of the physical and chemical qualities, preparations, etc., of medicinal substances; Mr Headland discusses the theory of their action when introduced into the system; and Mr Waring takes the more strictly practical view of the manifold uses that have been made of various medicines in the cure of diseases.

Mr Headland's book has reached a second edition. In this we find abundant evidence of careful revision, an earnest desire to avail himself of all recent sources of information, and a quality which, as reviewers, we are especially called upon to commend, a due respect for, though without any unnecessary submission to, the opinions of those who criticised and dissented from his views. The detailed examination, in the former series of this Journal, of the first edition of Mr Headland's essay, which is gracefully acknowledged in his present preface, removes the necessity for any renewed discussion here. We must therefore content ourselves with recommending to our readers this ingenious exposition of the humeral doctrines now prevalent in the schools. Every one who takes an interest (as every one ought to do) in the progress of that most obscure of all subjects, the *modus operandi* of remedies, should find a place for Mr Headland in his library.

Dr Garrod's book is a short and clearly-written commentary, very much on the plan of Christison's *Dispensatory*. It will prove a useful book to students who are preparing for Apothecaries' Hall, but for Scotch or Irish students it will be of less value, as it is almost entirely confined to the London pharmacopœia. It will be no less useful to English practitioners who do not wish to be encumbered with a more bulky volume; and so far as the London pharmacopœia is concerned, we can promise them that they will find all its essentials there in a clear and succinct form. The desire for brevity in the work has led to one or two omissions, which are, we think, to be regretted. Thus, whilst he has very properly given, under the head of Aconite, not merely the London tincture, but those of the Dublin College and of Dr Fleming, he does not, when discussing Hydrochlorate of Morphia, mention the important fact, that the London solution is nearly twice as strong as those of Edinburgh and Dublin. It is true that, in dispensing prescriptions, there is a certain amount of protection against error in the fact that each pharmacopœia denominates its solution by a different name—the more 's the pity, say we; but many patients habitually use their "morphia at bed-time," without any attention to the niceties of pharmaceutical nomenclature, and Dr Garrod ought to have told his English students and practitioners, to warn their Scotch or Irish patients, that 20 drops of solution of morphia in London are equal to 40 in Edinburgh or Dublin. We must also beg Dr Garrod to correct the atomic weight of mercury—Hg is not $=$ 100, if calomel and corrosive sublimate be *Hydrargyri Chloridum* and *Hydrargyri Bichloridum* respectively. If he will only persuade the College whose pharmacopœia he follows, to banish those dangerous names, he may adopt whatever atomic weight he chooses; but in the meantime, he must be content to differ from most modern chemists, and call Hg $=$ 200.

Mr Waring's book demands a more extended notice than we can find space for, but in the meantime we beg to state to our readers the general plan of the work, referring them for details to the book itself, which they will find to form a very good investment for

12s. 6d. Mr Waring, with a slight glance at the natural and pharmaceutical history of medicines, devotes his attention mainly to recording the special uses in the cure of disease which have been made of the different articles of the materia medica. Thus, to take an instance, *ad aperturam*, we have under the head of Ferri Sesquichloridi Tinctura, notes of its employment in nineteen different affections in which it has been stated to be of use, and in each case the reference is given to the statements quoted. In a work on this plan, accuracy of reference is of the utmost consequence, and we are bound to say for Mr Waring, that after having applied the test of turning up the passage quoted by him in several instances, we have always found him correct. This is a matter of more consequence than may at first sight appear. It has happened to us, unfortunately, very often to find an author cited as an authority for a practical statement, who never gave any grounds for the assertion at all, merely because some writer has quoted him incorrectly; and others have, without taking the trouble to refer to the original, copied the error till it has become stereotyped in medical literature. This we believe to be a fruitful source of the "false facts" with which medicine is said to abound. We are not prepared to become sureties for the accuracy of Mr Waring in every instance, but we are bound to say, that so far as we have tested him, he seems to be worthy of all confidence. If the value of Mr Waring's book, however, consisted merely in its use as a work of reference to the uses that have been made of individual drugs, it would be of comparatively limited utility to the practitioner. But by means of a very copious Index of Diseases at the end, the physician, who has met with a case which resists all his usual methods of cure, may be enabled to see at a glance what expedients have been had recourse to by others under similar circumstances. Thus, if he be baffled by a case of psoriasis, let him turn to page 744, and there he will find the following references, from among which he may perhaps find something useful to his scaly patient.

Psoriasis. Sesquicarbonate of Ammonia, 197. *Liquor Arsenicalis, 388. Iodide of Arsenic, 410. *Liq. Arsenic. et Hydrarg. Iodid. 414. *Tincture of Cantharides, 668. Daphne Mezereum, 998. Arseniate of Iron, 1072. Bichloride of Mercury, 1276, 1279. Iodide of Mercury, 1364. Iodine, 1485. *Cod Liver Oil, 1781. Phosphorus, 1923. *Pix Liquida, 1954. Pix Nigra, 1958. Acetate of Potash, 2021. Liquor Potassæ, 2072. *Iodide of Potassium, 2110. Bicarbonate of Soda, 2368. Solanum Dulcamara, 2398. Blood-letting, 2845. *Issues, 3034.—*Local Applications:* Acid. Acet. Fort., 25. Ioduret of Ammonia, 169. Nitrate of Silver, 342. Creasote, 934. Glycerine, 1216. *Calomel, 1356. Iodide of Mercury, 1364. Liquor Hydrargyri Pernit., 1381. *Ung. Hydrargyri Nit., 1399. Iodine, 1485. Naphthaline, 1710. *Opium, 1882. Phosphorus, 1923. *Pix Liquida, 1954. Pix Nigra, 1954. Borax, 2355. Bicarbonate of Soda, 2368. Liquor Sodæ Chlorinatæ, 2377. Iodide of Sulphur, 2487. *Leeches, 3060.

The asterisk * denotes those remedies which are the most deserving of notice.

We should, however, be doing but half justice to the labour and methodicity which Mr Waring's manual evinces, if we did not permit him to narrate, in his own words, the circumstances under which it was written.

> The compiler is painfully alive to the fact that, even in the department of which he has undertaken the illustration, many deficiencies and short-comings will be found to exist; and this leads him to mention briefly the circumstances, most disadvantageous ones it must be allowed, under which the following work was prepared for the press. It was compiled and arranged at Mergui, a small isolated station in the Tenasserim Provinces (part of ancient Burmah). It is the southermost part occupied by the East India Company's troops in the above provinces, being situated about 240 miles from Moulmein, above 1000 miles from Calcutta, and a still greater distance from Madras. In times of peace, the only means of communication with the above places was by monthly steamer, and after the outbreak of the Burmese War (1851), by a small sailing vessel, whose visits, like those of angels, were few and far between. Thus, as may readily be supposed, great difficulties existed in obtaining books for reference. Calcutta is the nearest place at which these can be procured, and a space of at least three months must necessarily elapse between the periods of writing to that city for books, and receiving them, or, in the stead, a polite note from the booksellers, to the effect that the work or works in question are not procurable in Calcutta, but that, on receiving instructions to that effect, they will procure them from England by the next overland mail, thereby entailing a delay of several months, and a considerable extra expense. However anxious a writer, under such circumstances, may be to accumulate facts or to verify notes which have been taken years previously, without any view to subsequent publication, the obstacles thrown in his way are so numerous, that it is impossible to overcome them entirely or to complete a work to his satisfaction. In addition to these difficulties, it may be added that the writer was "in orders" to proceed to an appointment at least 1500 miles from Mergui whilst the work was proceeding to a termination, and that, in consequence, he was much hurried in effecting its completion, as travelling in India is but little suited for carrying on any literary occupation.

A forcible illustration of our author's difficulties in procuring books, is afforded by the fact, that neither Dr Christison's Dispensatory, nor Dr Neligan's Medicines, etc., are mentioned among the books which he consulted, although the former reached a second edition in 1848, and the latter a third edition in 1851; Mr Waring bearing date 1854. Upon no other principle can we account for the absence of all notice of these standard works.

We cordially recommend Mr Waring's book to the notice of the profession. We ought, in fact, but for circumstances beyond our control, to have noticed it long ago. Of course all isolated statements as to the cure of diseases by special remedies, are to be taken *cum grano*—but with this proviso in their mind, our practical readers will find in this manual a very useful addition to medical literature.

Part Third.

PERISCOPE.

MEDICINE.

ON ULCERATIONS OF THE FRENUM OF THE TONGUE IN HOOPING-COUGH.

In Schmidt's Jahrbuch for 1844, M. Leisch drew attention to this complication, and gave a resumé of the previous observations of Zitterland, Braun, Bruck, and Amelung. They described the appearance of a yellowish vesicle under the tongue, just at the intersection of the frenum, which appeared to be formed by thickened effete epidermis. As the hooping-cough increased in intensity the vesicle became larger, sometimes assuming the dimensions of a small piece of coin. The vesicle gave way without any notable discharge, and left behind it an ulcerated surface. M. Leisch describes these ulcerations as follows : They are from one to two lines broad, and always to be found at the lingual insertion of the frenum ; they are roundish in shape, whitish, shallow, and of a flattened surface, and generally only one is to be met with. M. Leisch was not able to determine the previous existence of a vesicle. Since 1844, M. Gamberini has diligently investigated the subject, and has arrived at the following conclusions : viz., 1. The ulcerated condition of the lingual frenum is present in most cases of hooping-cough ; it is not, however, a constant phenomenon, and the disease may be aggravated in character, and in its most advanced stage, without this complication being observed. 2. The ulceration rarely takes a rounded form : its direction is almost always transverse to that of the frenum. 3. It commences by a simple solution of continuity ; and M. Gamberini has never observed the primitive vesicle described by previous authors. In his opinion these ulcerations are produced by the action of the inferior incisors on the frenum during the convulsive attacks of cough ; and he cites a case of hooping-cough in an infant of seven months, where these teeth had not made their appearance, and where these peculiar ulcerations were also absent. The prognosis of the disease is not modified by this complication, which readily yields to slight medication, or disappears with the complaint.—*Archives de Médécine.*

ON EPITHELIOMA OF THE LUNG OF THE FŒTUS. BY MM. P. LORAIN AND C. ROBIN.

An exceedingly long dissertation and description of a morbid condition, under the above title, is submitted to the Biological Society of Paris, in the form of a note upon the lungs of two infants, born at the full time and at the sixth month respectively, affected with pemphigus, and suspected to be syphilitic. The lungs were carnified or unexpanded ; certain parts, however, admitted being blown up from the bronchi ; in the most condensed portions the air vesicles and ultimate bronchi were plugged up with an unusual quantity of epithelial cells, which assumed the form of cylinders or moulds of the bronchial tubes. The pleura was unaffected. The authors are of opinion that the lesion was neither hepatization, lobular pneumonia, nor serous infiltration ; they have observed it in two other cases. We learn, moreover, that they look upon it as a "peculiar, special, ill-known condition," which, although indicated by previous observers, has never been described in an accurate manner, nor with attention to the microscopic appearances.—*Gaz. Med.* [We must confess that we have not been able to discover in the descriptions of the authors any grounds for adding another term to the already overloaded nomenclature of the infantile *Atelectic* lesions. It may be that a view of the preparations would have led us to alter this opinion ; if so, the authors and the society have not done them justice. The term epithelioma has, besides, another application ; and the use of it in this sense indicates a straining of analogies, which is not favourable to the judgment of the authors, nor legitimate in a scientific point of view.]

ON CONGENITAL CYSTS OF THE NECK. READ BEFORE THE BIOLOGICAL SOCIETY OF PARIS. BY M. P. LORAIN.

M. Lorain in this paper enumerates the characteristics of these tumours, and states that they are apparently peculiar to the cervical region—that they are developed in the subcutaneous cellular tissue, and do not originate in the glands or lymphatic ganglions. They may either be composed of numerous isolated cysts, or form a multilocular pouch. The liquid contained in them is originally composed of limpid, colourless serum, which afterwards becomes tinged with blood, from the compression to which it is subjected during labour. An inflammatory action may give rise to the formation of pus in these tumours. He also cites a case showing that they may be developed during the early months of utero gestation.—*Gaz. Med.*

ALBUMINURIA OF INFANTS; TREATMENT. BY PROFESSOR MAUTHNER.

The treatment of this affection, like all other complications of dropsy, has hitherto consisted in the administration of diuretics. In the dropsy succeeding scarlet fever, and which is accompanied with hematuria and albuminuria, Professor Mauthner, on the contrary, scrupulously avoids everything which, by leading to an increased excitement of the kidneys, may produce inflammation of these organs, or possibly give rise to Bright's disease. He has seen many cases where a cure has been obtained by well-regulated dietetic treatment, when diuretics have failed in checking the progress of the disease. In such cases he recommends the exclusive use of milk, and of rice and milk, and allows in addition a decoction of gum or of linseed. Under the influence of a milk diet there is established an abundant flow of non-albuminous urine, while the dropsy in consequence disappears. If the administration of milk is not followed by recovery, the effect of alkalies ought to be tried, with the view of modifying the urinary secretion. The medicine to which the preference is given is urea, either in its pure state or as nitrate. Taken in the dose of from one-third of a grain in powdered sugar, this medicine, when it reaches a dose of six or eight grains, determines an abundant secretion of urine, and the dropsy rapidly disappears.—*Journal des Maladies des Enfants*, Nos. 1 and 2. J. F. Kinderk.

ON THE TREATMENT OF CHOREA BY GYMNASTICS.

We observe that M. Blache has submitted a memoir on this subject to the Academy of Sciences. His remarks are founded upon the experience of 108 cases, 84 girls and 24 boys, treated by gymnastics alone, or by these in combination with other measures, such as sulphureous baths, etc. In 102 of these cases the cure was completed, on an average, in 39 days ; and in the 6 remaining, which he considers as unsuccessful instances, recovery took place in 122 days. The committee appointed by the Academy to examine M. Blache's paper, have reported on it in the most favourable terms, and considers the method of treatment advanced by him as deserving a place among the most approved curative means known in connection with this disease. The author has not only brought forward practical evidence of the successful employment of gymnastic exercises in chorea, but investigates their probable mode of action in that affection ; and has fully established that the efficacy of this method of treatment equals, in most cases, that of any other mode with which we are acquainted, while the remedy is free from those objections to which many others are liable.—*Gazette Med.*

ARSENIC IN AGUE (FIEVRES INTERMITTENTES PALUDEENNES).

MM. Fuster and Girbal have investigated this subject, and from the result of their labours, it would appear that arsenic possesses considerable curative power over this disease, and more especially in its tertian than in its quotidian or quartan forms. The exhibition of the drug is conducted in the same manner as that of quinine in this affection, and the occurrence of symptoms indicative of any of its injurious effects, or of cerebral excitement, are to be followed by a suspension of the remedy. Exceedingly small doses are recommended in the first instance, these being gradually increased according to circumstances. The formula given consists of one part of arsenious acid to a hundred of sugar, both finely pulverised, and of this 1 centigramme is to be taken daily, in such a way as that the last dose may be given about 4 hours before the expected return of the paroxysm. This remedy does not seem equal in its effects to quinine.—*Gazette Med.*

ON THE PATHOLOGY OF THE PANCREAS. BY DR EISENMANN.

The interesting experiments of M. Cl. Bernard upon the uses of the pancreatic juice, have led the author of this article to consider, whether or not the results, obtained by that physiologist, are capable of being applied to the diagnosis of disease in this organ.

If the pancreatic juice assists the digestion, and consequently the absorption of fatty matters, the conclusion is, that when the functions of that gland are destroyed by disease, fat should pass with the dejections, and be found in them in an unaltered condition. It is interesting to observe how nearly science has anticipated what the observations at the bedside of patients labouring under such disease have confirmed. The author has united the facts observed by others with those presented in a case of his own.

Of seven cases adduced, six terminated in death; there had been abundant fatty evacuations, and *post mortem* examination showed the existence of induration, or other alteration in the pancreas. In the seventh case, quoted from Lussana, the patient recovered. The principal symptoms in this case were copious salivation, a sense of weight in the epigastrium not increased upon pressure, eructions, flatulence, coldness of the surface, and a small and slow pulse. The expression indicated abdominal disease. Constipation was present, but the fæces contained yellowish particles resembling fatty concretions, and which were in fact composed of fatty materials. These occurred in increased quantity after purgatives. M. Eisenmann regards Lussana as the first who applied to pathology the discovery of Bernard. In the instance observed by himself, the author had diagnosed pancreatic disease, but had not made out the presence of fat in the evacuations. This circumstance induced him to suppose that the pancreatic juice did not exclusively produce the absorption of fatty matters, but was assisted in this action by the bile. Budge and Wistinghausen have made experiments which countenance this idea, and the author recalls a case cited by Pearson, of a woman who evacuated daily 3 oz. of a fatty substance, and did not present, upon *post mortem* examination, any trace of pancreatic disease, but the liver was pale, large, and destitute of bile. One remarkable circumstance is, that in many of the cases cited by M. Eisenmann, the oily evacuations had ceased, while the pancreas was so indurated as to render the performance of its functions impossible. The author also alludes to another circumstance, not less worthy of remark, viz., the large quantity of fat yielded, a quantity much greater than that contained in the food, and which leads to the supposition that part of the fœcal matters is transformed into fat. However that may be, the fact shows us that the presence of fat in the intestinal evacuations indicates with probability, but not with certainty, derangement in the functions of the pancreas; while, on the other hand, the absence of fatty matters does not authorise us to conclude that there is no disease in this gland, if other symptoms exist indicative of such an affection.

The author has endeavoured to employ the facts collected by him in establishing a more correct symptomatology of disease of the pancreas. He divides the symptoms into two classes, those accompanying degeneration of the gland, and those arising from its acute or chronic inflammation. For the first of these, the symptoms are too various to afford any certain signs of the affection; the presence of fat in the evacuations, and the examination of the abdomen by the hand, suggest, but cannot positively determine, its presence. It is otherwise, according to the author, with inflammation of the pancreas. This is distinguished by a sense of weight in the epigastrium, which is especially manifest about two hours after eating, extending towards the breast with a feeling of oppression; loss of appetite, inodorous eructations, *malaise*, retching or even vomiting, although the tongue may remain clean; constipation; small, diminished pulse; emaciation; expression of features indicative of an abdominal affection; melancholy and sometimes weariness of life.

The author recommends, as a mode of treatment, the waters of Friedrickshall, in small doses.—(*Vierteljahrschrift für die Praktische Heilkūnde*, 1853.)

PECULIAR VARIETY OF TINNITUS AURIUM.

M. Rayer communicated to the Biological Society a remarkable case of perturbation of the sense of hearing, in which the morbid sounds were isochronous with the pulse, and ceased upon compression of the mastoid artery. No morbid sounds could be discovered by auscultation, in the heart, aorta, or carotids. The noises commenced suddenly, and had continued, from that time, to be a cause of disquiet; they are more intense in the left ear than the right. M. Rayer states that, on applying the ear to that of the patient, the noises, and the different modifications they undergo, could be distinguished, such as sounds of wind, cries, hissing, etc. They do not materially interfere with hearing, and no apparent lesion of the auditory organs is present. In other respects the patient enjoys good health. It is supposed by M. Rayer that the cause of these sounds exists in some peculiarity in the distribution of the branches of the mastoid artery, or in some alteration of the tissues in which it ramifies; and he considers that auscultation ought always to be practised in the investigation of cases of this kind, in order to distinguish those where the sounds are audible to the physician, from others where the patient alone is conscious of them.—*Gaz. Med.*

PERFORATION OF THE APPENDIX VERMIFORMIS BY A BRISTLE. BY MR WARD.

A gentleman, aged twenty-five, had been suddenly seized with violent rigors, and on the following day had complained of pain and tenderness in the belly. The symptoms of acute peritonitis were subsequently developed, on the fifth day a swelling had become perceptible in the right iliac region, and on the eighth day death took place. At the autopsy a thick, almost purulent, fluid was found in the peritoneal cavity, together with much flocculent lymph. Behind the peritoneum in the right iliac region was a large abscess, communicating with which was a small ulcerated opening in the extremity of the cœcal appendix. Close to the latter lay a bristle, resembling one from an old tooth-brush, which appeared to have been the means by which the opening had been caused. The president, Mr Arnott, mentioned a case in which the entrance of a bristle from a tooth-brush into the larynx had caused death from inflammation; he was not aware, however, of any case similar to the one brought forward by Mr Ward.—*Pathological Society of London.*

GLANDERS IN THE HUMAN SUBJECT.

Dr Leopold Christen details three cases of this nature, and in connection with them discusses at some length the principal features in this disease. Although the malady itself is one of very ancient date, having been known to the Greeks and Romans, its contagious nature was not recognised until a very late period, the first case published having occurred in 1821; and since then, although not of very frequent occurrence, cases have appeared in sufficient number to place its infectious qualities beyond dispute.

Having described the disease as observed by him in the three cases he relates, Dr Christen enters into a general consideration of the disease, the substance of his remarks being:

1*st*, That the contagious communication of glanders from the horse to man is very easily effected, both directly and indirectly.

2*d*, That the occurrence of the disorder is always preceded by symptoms resembling those of rapid typhus, sometimes accompanied with profuse diaphoresis and a yellow colour of the skin.

3*d*, That these symptoms are speedily succeeded by the local manifestations of the affection. These are erysipelas of the face, purulent infiltrations and deposits in the muscles of the limbs, in the glands, in the genital organs, etc.—all these being at the same time accompanied by disturbance of the functions of respiration, digestion, excretion, etc., and increased fluidity and dark colour of the blood.

With regard to its treatment, the author can only speak as to its inefficacy; and he believes that the instances of recovery, mentioned by some writers, were not cases of veritable glanders.—*Vierteljahrschrift für die Praktische Heilkunde*, 1853.

ON THE TRANSFORMATION OF THE CYSTICERCUS INTO THE TÆNIA SOLIUM.

In the last number of the *Monthly Journal* we laid before our readers the details of a case of tape-worm, as given by Dr Crighton, and where a cure was effected by causing the patient to abstain from uncooked animal food. In reference to this subject, it may not be uninteresting to offer a short abstract of the recently published investigations of Dr Keuchenmeister of Zittaux, in this department of medicine. Having long entertained the desire of practically testing the possibility of the conversion in the human intestines of the cysticercus, in its different varieties, into the tænia solium, an opportunity was afforded him in the case of a criminal condemned to death, M. Keuchenmeister having been allowed to perform a *post mortem* examination. At different intervals before the day of execution, varying from 130 to 12 hours before that period, 75 cysticerci, which had been exposed to the action of the atmosphere from 70 to 132 hours, were administered to the subject of these experiments.

Forty-eight hours after the execution, a *post mortem* examination of the body was made in presence of several professors; and although the short period which had elapsed since the administration of the animals afforded little chance of a result in favour of the hypothesis, there were found, upon investigation, four small tæniæ in the duodenum, and six others, less perfectly developed, were discovered in the water with which the intestines had been washed. No traces of the entozoa swallowed were to be found in the whole alimentary canal, the remainder having probably perished there. The cysticerci employed were procured from the bodies of pigs, hares, etc.

From these facts the author concludes that—

1*st*, In man the cysticercus becomes transformed into the tænia solium.

2*d*, The mode of transmission of the tænia solium is the same as that of all entozoa proceeding from cysticerci, and generally from all kinds of tæniæ.

3*d*, The entrance of the tænia solium into the alimentary canal results from the swallowing of cysticerci contained in raw articles of diet, or in those substances cooked and which have become cold, as they are often found exposed for sale in eating-houses and such like places.—*Weiner Med. Wochenschrift*, 1855, No. 1.

FREQUENCY OF ENTOZOA IN EGYPT, AND THE DISEASES THEY OCCASION.

M. Griesinger, Clinical Professor in Tubingen, formerly of Cairo, in one of his medical memoirs on Egypt, gives some curious details on this subject. Along with his former colleague, M. Bilharz, he has described several new species, and made interesting observations on others which had been little known. Thus the *anchylostonium duodenale* was again met with by these gentlemen in their autopsies at Cairo. It was generally observed in great numbers at the upper part of the small intestine, where the animal was found attached to the muscular coat, which it reached after perforating the mucous. The loss of substance could be distinctly traced to the submucous cellular tissue, and occasionally the animal, much swollen, and enclosed in a small cavity full of blood, was discovered in the midst of the cellular tissue itself. MM. Bilharz and Griesinger consider the presence of this entozoon to be the cause of a disease to which all ranks in Egypt are subject, and to which they give the name of Egyptian chlorosis. A fourth of the whole population suffer from this malady, the symptoms of which are those of anæmia; the skin and mucous membrane become pale, the pulse quick, and venous bruits are audible in the neck, etc. The progress of the disease is slow; but the patient finally succumbs. For a long time M. Griesinger could find no lesion which could account for the disease and its mortality; but at length he came to the conclusion that the anæmic symptoms were due to the hæmorrhages, small in extent, no doubt, but almost constant, which resulted from the entozoa piercing the mucous membrane of the duodenum.

M. Bilharz has also described the *distomum hæmatobium*, which was found in the blood of the vena porta, and in the veins of the intestines and of the bladder. The presence of this parasite in the walls of the bladder accounts for the remarkable frequency of diseases of the bladder in Cairo, and which generally terminate in chronic cystitis and partial thickening of the vesical mucous membrane. M. Bilharz, in a former communication, gave the history of a certain form of dysentery, caused by the presence of a particular kind of entozoa.—*Vierordt's Archiv. für Physiolog. Heilkunde,* An. xiij. lu. 4.

TREATMENT OF LEPROSY IN CHINA.

It is generally known that an inveterate and loathsome form of leprosy is endemic in several parts of China; and that the subjects of it are frequently immured for life in hospitals, at the instance of the government, by whom the poor people are treated rather as criminals than as patients. At all events, when the disease is severe, it is generally regarded as incurable. Its treatment has been, in many instances, undertaken by the American and British medical missionaries, who have done so much for the good of the Chinese within the last twenty years, but, too often, with but little success. It is very gratifying, therefore, to find it recorded in the report for 1853–54 of the missionary hospital in the western suburbs of Canton, under the care of Dr Hobson, that successful trials have recently been made of a new remedy for the cure of the disease. This is the seed of one of the *flacourtiaceæ*, a plant known in Eastern Asia by the name of *chaul* or *charul moogra.* The seeds are coarsely pounded and given internally, in drachm doses, twice a day, for a considerable time. The expressed oil of the seeds is applied occasionally to the affected portions of the skin by friction. Dr Hobson writes thus of the results of this treatment:—"I have seen two cases certainly cured, and several others much benefited: some are still under treatment. The remedy requires to be steadily persevered with for several months. Salient aperients are administered along with it occasionally. The first appearance of improvement is in the eruption becoming less prominent and red, while whitish scales appear around the margins, and the central parts gradually assume the appearance of healthy skin.

The Chinese call the medicine *tae fung tsze.* A few use it secretly to cure scrofula as well as leprosy. They believe that it produces a change in the blood; and they use the expressed oil as a local application in cases of chronic ulcer, itch, and psoriasis; sometimes, also, it is given by the mouth as an anthelmintic."—*Communicated.*

THERAPEUTICAL RECORD.

TOPICAL ACTION OF BENZINE IN AFFECTIONS OF THE SKIN.

In the *Monthly Journal* for February 1855, p. 164, the experiments of M. Raynal with this substance in the treatment of parasitic affections among the lower animals are detailed. M. Lambert, in a recent number of the *Bulletin de Thérapeutique*, communicates some cases where he has employed the remedy in the treatment of itch in the human subject. In the form of ointment, it proved very efficacious: the itching ceased after the two first applications, and in the course of eight days, no trace of the eruption was visible. In other cases where the disease was of eight months standing, a cure resulted after eleven days' treatment. The proportions of the ointment are two ounces of benzine to half-a-pound of axunge. M. Lambert does not recommend the use of pure benzine alone, as its effects upon the skin have not been tested in the human subject, besides, it would be difficult to employ so very volatile a liquid in the way of friction.

SULPHUR LOTION FOR ACNE ROSACEA.

Dr Morris uses it in the form recommended by Mr Wilson, for the treatment of acne in general. In his hands it has appeared to possess little, if any, influence over the punctuated form; while for the rosaceous variety it appeared to be the remedy. It is as follows:—A drachm of camphor is pulverized with alcohol; twice as much milk of sulphur is then added (Mr Wilson recommends sulphur sublimatum); afterwards distilled water, to render it sufficiently liquid for use. This lotion is smeared with the finger over the face freely at night, and more sparingly in the morning; the effect is generally very soon apparent, and is often most striking. The lac sulphuris often contains as much as sixty per cent. of sulphate of lime; this does not appear to interfere with the action of the remedy. This preparation is preferable, on account of its minute subdivision, which makes it less irritating, and also for its whiteness. The use of this lotion should be persisted in for a considerable period if the blotches return; and if the surface will thus be preserved in a healthy state, Nature will gradually restore the deeper-seated structures to their normal condition. It does not appear to lose its efficacy by continued use.—*Lancet.*

ACID NITRATE OF MERCURY IN SKIN DISEASES.

Mr Startin uses this caustic extensively at the hospital for cutaneous diseases. The solution is a clear colourless liquid, prepared by dissolving one ounce of mercury in two ounces of nitric acid, of specific gravity 1.50. In carbuncle, if of moderate size, it is applied but to one central point, where it is freely painted for an extent of about a shilling in size. In acne a very minute drop is placed, by means of a finely-pointed glass brush, on the apex of any indolent tubercles, whether suppurated or otherwise. It has the effect of opening the pustule if matter have formed, and if not, induces the disappearance of the induration. In boils a full-sized drop is applied to the apex of the furuncle. The morbid action usually terminates coincidently with the application, and the core is thrown off through a comparatively small opening, the resulting cicatrix being insignificant. In lupus it is very efficient, but is chiefly used to the indolent tubercles, and indurated patches not actually ulcerated. After ulceration has occurred, the arsenical paste is preferred. In sloughing ulcers, either this solution or the arsenical paste is employed, and the surface granulates rapidly afterwards. In moles, nævi, etc., it is used. Small moles on the face, if superficial, and not too thick, may be readily destroyed by the acid nitrate, and the small resulting cicatrix is less unsightly than the original disease. In those mild forms which produce marks known as "port wine stains," "spiders," etc., a finely-pointed glass brush charged with the solution, or with nitric acid, should be carried along the course of tortuous vascular trunks; and, by repeated applications of this kind, the large vessels may be destroyed, and the disfigurement much diminished.

The glass brushes, flat or pointed, are readily made. The brush part is first made by uniting together with sealing-wax a tuft of spun glass, and then introducing it into the end of a glass tube of the thickness of a quill, which has either been flattened out or brought nearly to a point when heated. A little additional heat easily fixes the tuft in position, and by scissors it may be cut down to the requisite size.—*Med. Times and Gaz.*

IODINE OINTMENT IN CHILBLAINS.

Dr Wilson writes: "I noticed in a late number that you furnished some information to a correspondent on the subject of chilblains. I have found the ung. iod. co. of the London Pharmacopœia almost a specific for that disease as far as a merely local application can be considered in such a light against a most troublesome affection usually connected with general defective circulation. In many who had never before suffered from chilblains, I have also found it very serviceable. I had prescribed it first to a patient for an affection of one of the joints, and who afterwards mistook a chilblain for a similar affection, and used the ointment to it. The good success following induced me to try it in other cases, and with equally satisfactory results. Possibly it is no novelty."—*Med. Times.*

BATHS OF CARBONIC ACID.

M. Herpin of Metz, at the meeting of the Academy of Sciences, March 26, advocated the propriety of establishing carbonic acid baths in France, on the same principles as those which have existed for some years in Germany, such as at Marienbad, Karlsbad, Kissengen, Eger, Meinberg, Crontal, etc., where they are constructed in the style of the ordinary vapour bath. The employment of carbonic acid gas in this manner, is agreeable and convenient for the patient, as it may even be used without undressing. Its effects are to increase the heat and transpiration of the skin, to restore or increase periodical hemorrhages, as that of hemorrhoids, and especially the catamenia; it is of advantage also in unhealthy action occurring in wounds, and as a douche in many affections of the eyes, ears, etc. He therefore considered that such an addition to the establishments already existing at several watering-places, would be useful, and, at the same time, profitable for these institutions.—*Gaz. Medicale.*

HORSE RADISH AS A RUBEFACIENT.

M. P. H. Lepage of Gisors, considers that the powder of cochlearia armoracia may be advantageously substituted for mustard as a rubefacient. The volatile oil of both these substances is identical in composition, and the more prompt action of the first mentioned, he attributes to the great quantity contained in that root, as well as the smaller quantity of fixed oil likely to modify its activity. The powder which he proposes to employ, consists of four parts of dried powder of cochlearia armoracia, and one part of that of sinapis alba: when used, this is to be mixed in cold, or at most, tepid water. The advantages to be gained by the use of this substance, are its uniform strength, and the lesser chance of adulteration by the dealer.—*Journal de Pharmacie et Chimie.*

TINCTURE OF IODINE AS A PREVENTIVE OF PURULENT INFECTION.

The remedy is employed by injection, and our author is of opinion that it does not only prevent the decomposition of the pus, but stops it, should it have already commenced, and thus the risk of hectic fever, and the other effects of purulent absorption, are avoided. M. Boinet explains this property of the tincture by its action on the capillaries, to which it is applied. The blood they contain becomes coagulated, and forms a mechanical obstacle to the absorption of the deleterious matters. He has never seen any symptoms of poisoning result from the tincture of iodine having been allowed to remain in a cyst, but he takes care to withdraw as much as possible of the injected fluid. The conclusions come to are as follow—1. That the tincture of iodine, employed as a wash, injected into wounds, or on inflamed surfaces, has a powerful modifying influence on vitiated purulent secretions. 2. That it can prevent and cure *l'infection putride*. 3. That it prevents purulent infection when applied within a reasonable time, *i.e.* before the infection of the blood by the pus. 4. That it possesses the property of rapidly and intimately modifying virulent infections, and of destroying their contagious principle. 5. That judging from analogy, good effects may be expected from its use in rabies, farcy, etc. 6. That one of the advantages which it possesses over all caustics, is the safety with which it can be applied to all solutions of continuity, and shut sacs, without producing any injurious reaction.—*Gazette Hebdomadaire.*

SPENDER'S CHALK OINTMENT IN ULCERS OF THE LEG.

Dr Patterson has collected 125 cases of chronic non-specific ulcers of the leg, in which, under this mode of treatment, the cure has been rapid and complete.

The following formula he prefers :—

℞ Cretæ preparatæ, . . .	℔iv.
Adepis suilli, ...	℔i.
Olei olivæ, ...	℥iii.

Having heated the oil and lard, add gradually the chalk, finely powdered.

The ointment and a bandage being once applied, it is left until the cicatrix forms and becomes firm.—*American Med. Examin.*

ST JOHN LONG'S CELEBRATED LINIMENT.

The yolk of one egg ; oil of turpentine, f ℥iss ; strong acetic acid, f ℥i ; pure water, f ℥iii ; first rub the yolk of egg, the water, and the acetic acid together, then add the oil of turpentine, and agitate the whole until they are well mixed. This counter-irritant liniment is applied by means of a sponge ; its effects vary with the force which is used in rubbing, and the length of time the application is continued.—*Dr Neligan's Materia Medica.*

QUININE IN PREGNANCY—ITS DANGERS.

Dr Cochran has shown that quinine and its salts exercise an influence on the uterus in hastening the menstrual period, and in increasing the quantity of the discharge; and in connection with this fact he alludes to the effect of that substance in defibrinising the blood, and in rendering it fluid and incoagulable, as proved by the experiments of Baldwin, Melier, Briquet, and others.

On these accounts, Dr Cochran considers that during pregnancy this remedy should only be given in those cases where its use may avert a greater danger than that to be apprehended from its own effects in producing abortion.—*Charlestown Med. Journal.*

INSANITY—QUININE.

M. H. Legrand du Saulle communicates a case of insanity of a double form, treated successfully by sulphate of quinine. The patient, a female of 34 years, and the mother of a family, had been subject to periodical attacks of religious melancholy, lasting for 6 days, and then succeeded by furious mania, lasting about the same length of time, and which, upon passing off, gave place to an interval of 11 days, during which the health, intellectually and bodily, seemed complete. The sulphate of quinine was prescribed, and continued without interruption from March 3d until April 10th, gradually increasing the dose from 4 grains to 2 scruples. At the usual period for the accession of the melancholy only a slight dulness appeared, and for three years the affection has not returned.—*Annales Medico Psychologiques.*

AGUE—IODURET OF QUININE.

M. Paura, Professor of Chemistry at Naples, proposes a new preparation of quinine—the ioduret of quinine—as a remedy in intermittent fevers, resisting treatment by anti-periodics under the influence of a scrofulous constitution. It appears to have been tried with success by Dr Giuseppe Manfredonia of Naples, in doses of from 8 to 16 grains daily, its curative powers being rapidly manifested in the most obstinate cases.—*Gazetta Medica Italiana, Lombardia.*

PODOPHYLLINE, A NEW ALTERATIVE.

Dr Bates has used podophylline, the active principle of the podophyllum peltatum, with the greatest advantage to the patient, in all those cases where some of the various compounds of mercury were formerly recommended, for the purpose of arousing the action of the great secretory organs, and especially that of the liver. In cases of habitual costiveness this remedy has acted like a charm, its effects remaining some time after ceasing its use. In one case where, from chronic functional disease of the liver, an habitual costiveness was produced, which had formerly been treated by drastic cathartics, purges, calomel, blue pill, etc., it yielded to the daily use of one-eighth of a grain of podophylline for a month, and for six months the patient was entirely exempt from her former difficulties; and these returning again, the same medicine was given, with its former success.

As an alterative this medicine excels all the mercurials, and the following are the forms in which he administers it:—℞ Podophylline, gr. j.; ipecac. pulv., comp. ext. colocynth, āā grs. iv.; syr. acaciæ gummi, q. s. M. Ft. 8 pills. S. One to be taken every evening. ℞ Podophylline, gr. j.; ipecac. pulv., grs. v.; hyoscyamuis ext., q. s. M. Ft. 20 pills. S. One to be taken every morning and evening. In infants when the bowels are sluggish, and an alterative is indicated, the following prescription is used:—℞ Podophylline, gr. ss.; sach. alb. pulv., ℥ij. M. Divide into 24 or 32 powders. S. One to be taken at night.—*Boston Med. and Surg. Journal.*

LARYNGITIS—NITRATE OF SILVER.

Dr Ebert employs inhalations of nitrate of silver in substance with great benefit, in all inflammations of the laryngeal mucous membrane. He has employed the nitrate of silver also in solution, after the manner of Green, but has never been able to satisfy himself that the larynx was really entered. The mode in which the solid caustic is introduced is as follows:—Three grains of the nitrate are mixed with one drachm of sugar; the powder is placed in a steel-pen, which is itself firmly inserted in a quill open at both ends. The little apparatus is then put into the mouth, so that the end of the steel-pen shall be on the root of the tongue; then the lips are closed round the quill, and the patient inspires forcibly. The first attempt is almost always a failure, and the nitrate is only tasted on the root of the tongue; but the patient soon learns to manage it very well. A little cough and irritation follow, but no great uneasiness. For young children this method does not answer, and a special apparatus must be used.—*Annalen des Berlin. Char. Krankheiten.*

TREATMENT OF SACCHARINE DIABETES WITH CREASOTE.

Dr Michalsky of Kreuzburg reports a case proving, according to him, the felicitous influence of this method of treatment. The patient was a man aged 28 years, and had been affected with this disease for a year and a half; the quantity of urine was much increased, and contained, upon analysis, 1 ounce of sugar in 20 of that fluid. He was confined to an exclusively animal diet and ordered pills containing the creasote. Owing to the patient's strength becoming suddenly diminished, the creasote was for a time suspended, and a decoction of cinchona bark substituted for it, returning subsequently to the use of the creasote. After six weeks' treatment the urine was found to have resumed its normal quantity and quality, and the sugar to have entirely disappeared.

Some credit may be due to the mixed treatment, comprising tonics at the same time as the creasote; but it does not diminish the interest attaching to the case, as a very rapid and successful cure of this affection.—*Sanitaets-Bericht des Reg.—Bezirks Oppeln. et Preuss. Vereins Zeit.*, 1855, p. 4.

TREATMENT OF DIABETES BY OIL OF THE PROTO-IODURET OF IRON.

M. Duchesne gives an account of a man of 54 years, who was attacked with this malady in 1850, and although treated so far successfully, the sugar never entirely disappeared from the urine. In 1851 he became affected with an obstinate furunculous eruption, and was placed under the care of Dr Duchesne, who prescribed the oil of the proto-ioduret of iron (L'huile de proto iodure de fer). After continuing this treatment for many months in doses of 3 grains daily, the eruption and the sugar in the urine at once disappeared. Up to this time no signs of a recurrence of the disease have shown themselves.—*Moniteur des Hôpitaux.*

INDURATION OF THE SUB-MAXILLARY GLANDS—BLACK OXIDE OF COPPER OINTMENT.

A notice of this ointment appeared in the February number of the *Monthly Journal* for 1855. The following instance illustrates its efficacy:—In a case where a hard swelling and induration of the sub-maxillary and sub-lingual glands had existed for two years, as a consequence of inflammation of the tongue, and resisted all treatment by mercury, iodine, etc., M. Pondmann was induced to try the ointment of Professor Hoppe of Bâle, and prescribed the use, twice a day, of the following formula:—

Black oxide of copper, . .	8 grains
Lard, ...	1 ounce.

At the end of a week the tumour was both softer and smaller, and in six weeks more the resolution of the glands was complete.—*Annales et Archives de Medecine, Belge et Etrangère.*

WINE ADMINISTERED AS AN ENEMA. BY DR ARAN.

This author avails himself of the advantages of wine as an enema in chlorosis, dyspepsia, phthisis, and the period of convalescence after severe illness. He has also frequently employed it in this manner with success in various other circumstances requiring the use of alcoholic stimulants.

During the first days of their employment, enemata of wine occasion phenomena resembling those of slight intoxication, producing a genial excitement which may proceed the length of delirious gaiety. If taken previously to going to bed, the patients sleep profoundly, their strength next day is greater, and their appetite increased. The impression produced on the nervous system is much stronger than when the dose is exhibited by the stomach.

The quantity of wine to be injected varies according to circumstances: five ounces is generally sufficient for producing an excitement adequate to the requirements of slighter cases, while the dose may often require to be increased to eight or twelve ounces in those of a more serious description. One enema in the day is enough, but it is necessary to use the precautions generally recommended for insuring the retention within the intestine of enemata composed of absorbable substances.—*Bulletin de Thérap.*

MIDWIFERY.

CASES OF PELVIC ABSCESS.

Dr Peaslee presented to the New York Pathological Society two uteri, with the related parts, showing the effects of *pelvic abscess.*

The *first* was from an Irish woman, unmarried, 24 years of age, of very fair complexion; who, fourteen weeks before death, was under treatment in the country by a physician, who told her that she had disease of the uterus. Six weeks before death she was attacked by dysentery, as was believed; and two weeks after this was admitted into the Cholera Hospital, under the supervision of Dr D. S. Conant, to be treated for cholera. The symptoms of that disease were soon relieved; but she died in four weeks, with continued symptoms of dysentery.

Post Mortem Examination.—The colon was found intensely inflamed throughout. The specimen showed the uterus anti-flexed and inclined to the left, and the rectum, at its upper part, depressed and inclined to the right. The cavity of an abscess existed under the right fallopian tube and ovary, extending behind the displaced uterus (the abscess being doubtless the cause of displacement) and opening into the rectum at its upper extremity; this being drawn down and displaced to the right, as already described. The right ovary was atrophied to less than half its usual size, but not *structurally implicated in the abscess.*

The *second specimen* was obtained from a subject on the dissecting table; nothing being known of the case, except that the woman died in a jaundiced state, and had a fatty liver as well as the pelvic abscess about to be described.

A large abscess was found to have almost entirely destroyed the substance of the left ovary, and this had discharged by several small openings, apparently, into the cul de sac between the uterus and the rectum. Inflammation of the peritoneum thus ensued; the effect of which was to glue the small intestines in a mass across the pelvis, and thus roof over the cul de sac, and prevent the matter escaping among the convolutions of the alimentary canal. Finally, the matter thus confined had been discharged through an opening, four lines in diameter, into the vagina at the bottom of the cul de sac; and through two smaller openings into the rectum also, three and a half inches above the anus. A layer of exuded plasma still covered all the surfaces forming the boundaries of the cavity in which the matter had passed from its original place of formation.

Dr Peaslee remarked that these specimens had presented to him several points of interest. He had seen five cases of pelvic abscess within the past nine months, with whose history he was familiar. The patients were all females, four of them being unmarried, and the other (36 years of age) not having borne a child for the last seven years. In all, the disease dated from some unusual exposure at the time of the catamenial flow. In every case, symptoms occurred which might, naturally enough, have been attributed to dysentery alone, had the true nature of the disease not been ascertained; and in every case matter had been evacuated by the rectum. In one case, it was said to have been passed from the vagina also; but from the very frequent mistake of mere vaginal mucus, or a common leucorrhœal discharge (purulent or otherwise), for matter discharged from an abscess, we may doubt if this was the fact. The *second* specimen demonstrated the possibility of a discharge through both the rectum and the vagina at the same time. The discharge, in the five cases, occurred in from three to five weeks after the first inflammatory symptoms were developed.

We may learn practically, from these specimens, the propriety of seasonably opening a pelvic abscess either from the vagina or the rectum, according to circumstances, so far as its mere evacuation is concerned. And in this point of view merely, it should be opened from the one of these two canals in which fluctuation is most distinct.

There is another point of view, however, Dr Peaslee remarked, in regard to which the point selected for the opening is of very great importance. He alluded to the ultimate effects of a spontaneous opening into the rectum, in producing a *stricture of that canal.* In three of the five cases alluded to, a stricture occurred in consequence of the opening into the rectum. In one of these, Dr P. was at first led to suspect schirrus; but the treatment adopted had removed all suspicion of any malignant disease. In another case, now under treatment, he would have made the same mistake were it not for his previous experience. In this last case, the stricture would not allow a No. 7 catheter to pass through it. Dr P. divided it freely with a bistoury, and now (at the end of two weeks) it admitted a bougie one inch in diameter. In these three cases, the stricture commenced within four inches from the anus.

With a view to avoid this ultimate effect of a pelvic abscess discharging into the rectum, Dr P. thought it better, if fluctuation could be felt from the vagina, to withdraw the matter through that canal. A stricture would be less likely to form, doubtless, if an abscess were seasonably opened, than if left to open spontaneously; but if a stricture is to occur, it would, under most circumstances, be desirable in the vagina rather than in the other canal.

While suggesting this operation instead of the opening from the rectum, Dr P. would also say, in regard to the suggestion made by Dr Sayre at the last meeting (as Dr P. was not then present), to open from the vagina in some cases of ascites—instead of the usual operation through the linea alba—that a patient of which he had the care in part, had been tapped five times in this way; and that the puncture through the cul de sac, between the uterus and the rectum, had always healed at once, and without the least difficulty—the patient having been kept in bed four or five days after the operation. At one of these tappings 106 lbs. of fluid had been withdrawn, and 103 lbs. at another.—*New York Medical Times.*

CASE OF QUADRUPLE BIRTH. BY WM. RANKIN, M.D., OF SHIPPENNSBURG.

April 20, 1854. I was called to visit the wife of Mr John Tarvin, farmer, who was supposed to be in labour, having completed the full term of her fourth pregnancy. On my arrival, I found a child delivered; but on examination, ascertained that there was another contained in the uterus. After waiting nearly an hour from the time the first child was born, for further uterine contractions, I ruptured a set of membranes that presented in the form of a pouch at the os uteri, when a pain came on and delivered another child. On examination over the region of the uterus, I discovered the presence of another child; and no pain coming on, after a reasonable delay, I ruptured a third set of membranes, when a powerfully expulsive contraction took place and expelled a third child. From the usual examination, I ascertained that there was yet another child to be delivered; and no pains coming on, I resorted to the plan of rupturing the membranes, when almost immediately a pain occurred and effected the delivery of a fourth child. By a little manipulation over the region of the uterus it contracted and expelled from its cavity two placentæ, to one of which three cords were attached, and to the other but one; the whole mass not larger, I think, than I have often seen after the delivery of one child. The cords were something smaller than the average size. The uterus afterwards contracted well, and there was no more hemorrhage than takes place after the majority of cases of parturition. The woman appeared very much exhausted and overcome by distracting emotions in consequence of the enormous brood of children to which she had just given birth; but after encouraging and consoling her, as well as I could, by pointing out her duty in the case, and assuring her that there would, undoubtedly, be ample means provided for their maintenance, she soon assumed a cheerful countenance, her general debility gradually abated, and she progressed through her confinement as favourably as most women do after giving birth to a single child.

The first and last born were rather larger than their mates, and were all, apparently, healthy and viable, and, according to their mother's reckoning, had come to their full time. Although I unfortunately neglected weighing them, I think they would have averaged four or five pounds.

They were all of the male sex. The hair nearly red, and the complexion florid in all of them.

The mother is a woman of slender and rather delicate form, of medium height, and generally healthy, of about thirty-five years old; and, before this quadruple birth, had had three daughters at as many births; five years have elapsed since the last. Her complexion and hair are dark. The father is a stout, athletic, healthy man, of about thirty-eight years of age; hair fair, and complexion florid; of sanguine temperament.

The first born of the children, about eight weeks after birth, sickened and died after a few hours' illness, most probably from the almost unavoidable irregularity in giving it nourishment.

After the milk was fully secreted the mother had, for a month or so, plenty of nourishment for them all, after which time food was required from other sources, principally cow's milk diluted with water and sweetened with loaf sugar. The three surviving are now, 14th of January, 1855, quite healthy and thriving children.—*American Journ. Med. Sciences,* 1855.

CASE OF EARLY LIVE BIRTH.

In the "Boston Medical and Surgical Journal" for Nov. 15, 1854, there is quoted from the *Edinburgh Monthly Journal of Medical Science,* the case of a fœtus born *alive* in the fourth month of pregnancy, which lived, or manifested signs of vitality, for nearly an hour. In the same Journal for February 1855, we find the following recorded by Dr Casey :—

"On the 26th of December last, I was called to attend a woman in labour, who had previously miscarried three times. She was in the sixth month of gestation, having last menstruated on the 5th of August. When the fœtus was expelled, pulsation in the cord was strong and regular, and the movements of the child quite lively. The pulsation ceased in a few minutes, and I then tied and cut the cord, and extracted the placenta without difficulty (there had been very little hemorrhage previous to the birth). The child cried a little, or attempted to, and breathed with a good deal of vigour; moved its limbs, and acted like a great many other feeble, premature children. Not supposing that it would live beyond a few minutes, I neither weighed nor measured it. Its eyes were closed, but mouth was open, and the old nurse who was in attendance subsequently assured me that the child had actually swallowed a little sugar and water. This, of course, I do not vouch for. I had the specimen wrapped up first in cotton batting, then in a flannel petticoat, and laid on a bench by the stove. At my visit next morning, on making some inquiries, I found that the child had actually lived, breathed, and moved, occasionally giving utterance to a feeble cry or moan, for ten hours."

CASE OF COMPLETE EXTIRPATION OF THE UTERUS FOR INVERSION. BY PROFESSOR GEDDINGS OF CHARLESTON, SOUTH CAROLINA.

The patient was a negress; the accident of some 18 years' standing. On examination, a large pyriform tumour, equal in magnitude to a fœtal head at the full term, was observed proceeding from within the vagina, and hanging between the thighs of the patient. Its surface was covered with a rough, thickened mucous membrane, abraded and ulcerated on many points. The orifice of the urethra was but little removed from its normal position. The operation for its removal was performed by seizing the tumour high up, and manipulating in such a manner as to exclude all the convolutions of the intestines, which could be readily felt, and then passing a strong ligature around the part. The neck of the tumour was then divided below the ligature by a single snip of a probe-pointed bistoury. The operation was easy, and attended with no pain. On making a section of the tumour, it presented a solid homogeneous mass, of a greyish white texture, and fibrous appearance. The whole cavity, formed by the inversion of the walls, had become obliterated by the adhesion of the opposing peritoneal surfaces. The after treatment of the case was simple, and the patient, in the course of a few days, speedily recovered.—*Charleston Medical Journal.*

PUERPERAL PARALYSIS.

Several cases illustrative of this affection, so recently made a subject of investigation by Dr Churchill of Dublin, have occurred under the care of M.

Sandras, in the Hotel Dieu, at Paris. In Dr Churchill's cases, it will be recollected, that they were dissimilar from one another in their commencement, progress, and termination. Many among them might be referred to various common causes of paralysis, apart from the puerperal condition, such as cerebral congestion, meningitis, hysteria, chloro-anæmia, etc., all being circumstances in which pregnancy or the occurrence of labour could exercise only an occasional or predisposing influence; so that the majority of them would be more appropriately described as cases of paralysis supervening upon different causes co-existing with the puerperal condition, than by the indefinite designation of puerperal paralysis.

From the examples of this disease adduced by M. Sandras, occurring as they did at different periods before and after accouchement, and exhibiting symptoms of various kinds, it appears that paralysis, happening in connection with the puerperal condition, is not, on that account, worthy of a special nomenclature. No doubt, paralysis may be produced by some of the accidents of parturition; but there seems reason to believe that many cases of paralysis accompanying pregnancy are neither more nor less than simply co-incident with it.

It would occupy too much space here to enter into an examination of the question of albuminuria which Dr Churchill considers of such importance in relation to the production of puerperal paralysis; but it must suffice to state that albuminuria is not regarded at the present day by the most competent authorities—and among them Professor Dubois—as the cause, but rather as an accompaniment of convulsions.—*Gazette des Hôpitaux.*

TREATMENT OF PUERPERAL METRO-PERITONITIS. BY PROFESSOR DUBOIS.

In cases of a milder nature, leeches and poultices are to be applied over the seat of pain, and castor-oil given in the dose of half a drachm; in more serious cases the same means are to be employed, with the addition of calomel and opium internally, and mercurial applications externally. The calomel is given according to the annexed formula:—

Calomel, ...	gr. j.
Sugar, ...	℈ij.
Ext. gomm. theb., . . .	gr. iij.

Divide into 15 powders, one of which is to be taken every two hours till salivation commences.

Should this mode of treatment be found insufficient, mercurial ointment is to be applied to the abdomen; and when salivation occurs, the quantity rubbed on is gradually lessened until the fifth or sixth day, when its use is altogether suspended. During this time the patient is to take every evening a pill, composed of half a grain of the gum extract of opium (*extrait gommeux d'opium*).

In so serious an affection as this, the strength becomes rapidly exhausted; and with the view of guarding against this effect, M. Dubois exhibits the following tonic mixture:—

Extract of cinchona, . .	ʒj.
Syrup of tolu, ...	℥j.
Water, ...	℥iv.

The same draught has been successfully prescribed in gangrene of the vulva with a tendency to constitutional infection; and also in certain cases of profuse diaphoresis connected with milk fever, and giving rise to miliary eruptions persisting for seven or eight days after delivery.—*Journ. de Med. et de Chir. Prat.*

ECLAMPSIA SUPERVENING TWENTY-THREE DAYS AFTER DELIVERY. BY DR LUMPE.

We (*Gazette Hebdomadaire*) published some months ago, a case of convulsions occurring nine days after delivery. The fact recorded by Dr Lumpe is still more exceptional. In the Klinik der Geburtshülfe und Gynækologie (Erlangen, 1853, Part 2, p. 273) by MM. Chiari, C. Braun, and Spaeth, it will be observed that among eight women seized with convulsions in the puerperal state, the longest period after delivery at which the convulsive attack took place was three days. In reference to this subject we may quote a case from the practice of Dr Leudet, sen., in which the convulsive seizure supervened five days after delivery and terminated in death, the patient being a young woman who, without presenting cerebral symptoms, had, during her confinement, complained of some pain and slight tenderness at one side of the uterus, for which leeches were applied. The case related by Dr Lumpe is that of a woman aged 30, multipara, delivered at the full term, who had presented, after delivery, symptoms of metro-peritonitis, from which she recovered, and in whom some cerebral phenomena presented themselves twenty-three days after the birth of the child. The principal symptoms were, a feeling of general lassitude, amaurosis with dilatation of the pupils, together with some œdema of the ankles, puffiness of the eyelids, and tendency to vomit. Eclamptic convulsions supervened, and were repeated about once every hour. The urine drawn off from the bladder by means of a catheter contained a large quantity of albumen. In it were also found a marked diminution of the urea and of the phosphates, and an increase of the chlorides, sulphates, uric acid, and especially of uroxanthin. On microscopic examination of the urinary sediment, epithelium, crystals of uric acid and fibrinous casts of the tubes of Bellini were observed. The patient had altogether fourteen convulsive fits. The day after their first appearance they ceased, the urine contained scarcely any traces of albumen, and even these had entirely disappeared on the following day; the œdema of the lower limbs wore off. Under the influence of a restorative alimentary regimen, and the use of ferruginous preparations, the patient's health was completely re-established.

This case, it will be seen, presents several interesting points. Besides the late period at which the convulsions took place, the rapid recovery of the patient is remarkable.—*Dub. Med. Press, from Wiener Wochensihrift*, 1854, No. 29, p. 453, and *Gazette Hebdomadaire.*

ON ABSORPTION OF THE PLACENTA. BY M. SABATIER OF BEDARIEUX.

The author, in this paper, inquires whether the placenta, enclosed within the uterine walls, can be absorbed in its natural situation in the absence of those physiological and pathological phemonena which accompany similar processes occurring in certain sanguineous tumours, the separate elements of which re-enter the circulation without injury. This question has been answered in the affirmative by MM. Stoltz, Dubois, Cazeaux, and other eminent accoucheurs, and it is not the confutation or discussion of the opinions entertained upon the subject which M. Sabatier proposes, but the illustration, in the three following cases, of the manner in which the products of decomposition of the placenta are eliminated from the economy.

Obs. I.—The patient, Catherine Bousquet, aged 35, in her fourth pregnancy, was, when three months and a half pregnant, accidentally hurt. Abortion supervened, and the fœtus was expelled, but the placenta remained in the uterus, where it resisted all measures adopted for its removal. For four days the case went on favourably, but on the fifth a severe rigor occurred, lasting an hour; and there were also present headache, fever, tenderness in the region of the uterus, and pains in the lumbar region and in the groins. Examination showed that the os was somewhat opened, and a purulent fœtid fluid had commenced to ooze from it. Repeated injections were ordered to be given by means of a uterine syringe, mounted with a gum elastic tube. These injections entered the uterus with some difficulty, owing to the small size of the os. During three days the lochia continued abundant but horribly fœtid, and the countenance became altered, and presented a yellow, earthy appearance. However, the tenth day after the commencement of the case, matters changed, a violent rigor took place, the patient complained of severe pain between the shoulders, and almost immediately began to expectorate in great quantity. The expectoration was extremely fœtid, having precisely the same smell as the lochia, and on auscultation, both lungs appeared quite full of fluid. For a week the patient expectorated the third of a litre daily, and what was thought remarkable, as the expectoration proceeded, the discharge from the uterus diminished, and by the fifth day entirely ceased. This patient, under a treatment with camphor, tonics, and generous diet, completely recovered.

The vessels into which she expectorated, and the linens soiled by the lochia, afforded no traces of placental tissue.

Obs. II.—Marie Cambon, aged 24, pregnant for the first time, was delivered of twins, after which the placenta could not be detached. The uterus was firmly contracted, and in making somewhat forcible traction on the placenta, one of the cords broke. Slight hæmorrhage was present. The nurse admitted having given a dose of ergot to accelerate the labour, and as M. Sabatier had seen, in similar circumstances, a tetanic condition of the uterus produced, he ordered an anti-spasmodic and narcotic draught, and waited for one hour.

After the lapse of that time, the placenta still remained disengaged, and upon examination it was found adherent by its superior part, while the centre and a large portion of its circumference had been detached. As much traction as was considered prudent, and injection of the umbilical vein having been unsuccessfully attempted, with the view of loosening it, and hæmorrhage having become rather serious, it was decided to remove the detached portion of the mass, which was accordingly done. Nothing remarkable occurred from that time till the fourth day, when a rigor took place, followed by sweating, fever, headache, intense thirst, and tenderness of the uterus; and the lochia commenced to present some degree of fœtor. For a few days subsequently these symptoms increased, the expression became altered, the face pale and yellowish, and everything indicated the approach of death. But on the twelfth day another rigor occurred; a severe pain was felt in the scapular region, and in this patient also a fœtid and copious expectoration commenced and continued of a greenish yellow colour, sometimes rusty, streaked with blood, and of an insupportable odour. As in the preceding case, camphor, tonics, and chloruret of lime, were successively employed. The expectoration lasted for fifteen days; the lochia, at first very abundant, disappeared six days after its commencement.

On auscultation, all the bronchi, and especially the posterior branches, were found filled with fluid, but no symptoms of inflammatory action could be detected. The sweatings, which at first were very profuse, ceased entirely as soon as the expectoration commenced—they never were fœtid.

This patient recovered, and is now in good health; no portion of the remnant of the placenta had ever been noticed in the discharges. She attributed the affection to a blow received upon the abdomen during the fifth month of her pregnancy, and which had at the time threatened serious consequences.

Obs. III.—This case, which was only incidentally seen by M. Sabatier, was that of a woman subject to abortion. The last took place at the fourth month, and the placenta remained within the uterus, considerable hæmorrhage having occurred; she was, however, able to resume her wonted occupations. On the eighth day a violent rigor occurred, with pain in the side, and very soon afterwards was followed by intensely fœtid expectoration. Two medical men who had been in attendance, not having particularly directed their attention to the uterus, believed the case to be one of pneumonia terminating in suppuration. Auscultation, however, afforded none of the indications of inflammation; and it was ascertained that a fluid having the same odour as that of the expectoration was oozing from the os uteri.

This woman, like the others, perfectly recovered.

These three instances appear to the author to demonstrate, that it is especially by the lungs that the putrid products of decomposition in the placenta are eliminated. But how does this take place? Is it by means of the veins alone that these poisonous matters are absorbed, or do the lymphatics assist in this process?

We believe, says M. Sabatier, that it is principally the veins which take up the more fluid part of the decomposed tissue, and that by them it is carried into the circulation, from which again it is removed by the different secretions, such as the saliva, sweat, tears, etc. The earthy colour of the skin, which the patients at first presented, can scarcely be explained, except by a general infection having occurred, that is to say, by the direct absorption by the veins of the deleterious materials. But admitting such absorption to have taken place, the remarkable fact of their being carried to the bronchi does not appear satisfactorily explained. The rigors, the thoracic pain, the horribly fœtid expectoration, do not seem analogous to those symptoms which are observed in cases of infection by the absorption of pus. The chest symptoms exhibited are not comparable with those manifesting themselves in the last stage of some affections, when emaciation, hectic fever, night sweats, and, above all, diarrhœa occur, as the immediate forerunners of death.

By chance there has been admitted, says M. S., under my care in the hospital, a man labouring under spontaneous moist gangrene of the leg. I devoted particular attention to the phenomena presented by this man in relation to the pulmonary apparatus. These were merely cough, with some expectoration impregnated with a slightly gangrenous odour; but the perspiration, which was very profuse, the urine, the fœces, all were impregnated likewise. In those other cases again, related above, no fœtor existed in the sweat, or in any of the other secretions, except that of the bronchi, by which alone the elimination took place.

I would, then, be induced to admit that to this absorption by the veins, there is united that by the lymphatics. This opinion may be considered a bold one, especially now that physiologists agree in denying all absorptive power in the lymphatics. (Berard, Physiologie, Tome II.) For myself, I consider that we are far from understanding thoroughly the properties of these vessels. The enormous size occasionally attained by them after some cases of puerperal metritis, the pus found within them, render it probable that, besides the result of inflammatory action, this is, in certain circumstances, the consequences of direct absorption.

Whatever may be the explanation, the fact exists: it is mainly by the lungs that the putrid products, here referred to, are eliminated; and it is probably, in this manner, that most of those placentas, left, wholly or in part, within the uterus, have disappeared. It seems difficult to me to reconcile complete resorption without previous decomposition. The instance of M. Olande (Gazette Med., 1848, p. 55), so often cited, does not appear to me as an example to the contrary.

In conclusion, let me remark that, in the second case adduced, the cause of the utero-placental adhesion, was evidently the blow received at the fifth month of pregnancy; a separation of the placenta and hæmorrhage were produced, and the blood effused between that body and the uterine walls, becoming organised, gave rise to the adhesions.

It is possible that the pulmonary flux (fluxion) might be explained by metastasis. The lungs and the uterus are singularly connected, and this is evinced in certain pathological conditions, as in those cases where periodical hemoptysis acts vicariously where the catamenia are suppressed.—*L'Union Médicale.*

[The symptoms detailed in these three cases seem capable of explanation in the same manner as those exhibited in many other cases of phlebitis or pus in the circulation, followed by recovery—in as much as they present nothing more than all the characters of the formation and progress of the isolated abcesses common to cases of this nature.]

ABSORPTION OF THE PLACENTA. BY J. M. WINN, M.D.

Dr Winn mentioned a case to the London Medical Society, which he believed to be one of absorption of the placenta. A woman, after seven months' gestation, was delivered of a child, and the surgeon in attendance stated that the placenta had not passed, and that he had been unable to remove it. Forty-two hours after delivery, he (Dr Winn) found the uterus contracted, so that he could with difficulty introduce two fingers. He discovered that the placenta was strongly adherent, and thinking it wrong to use violence to remove it, he allowed it to remain There was a little sanguineous discharge, and the belly was slightly tympanitic; otherwise the woman seemed perfectly healthy. She recovered without a bad symptom, the placenta, as he believed, having been absorbed. Whenever a considerable time had elapsed without a bad symptom, and the placenta was strongly adherent, he thought it better to allow it to remain than to use violence to remove it.—*Associat. Journal.*

COMPLETE OBLITERATION OF THE VAGINA BY ADHESION.

Dr Saurel, in examining an old woman, 61 years of age, who had come to consult him for urinary irritation, found the canal of the vagina closed. Its walls appeared to adhere not in any regular manner, but as if they were constricted by a circular band. The finger and a very small sound failed to discover any trace of a passage. The absence of pain during these manipulations, and the fact that no inflammation could be observed, indicated a lesion of no recent date. The woman had had seven children, the youngest being nineteen years of age. Her husband, a man of ardent passions, had, twenty-seven years before, given her a chancre, and since then several gonorrhœas. He had never discontinued his intercourse with her. It was probable, therefore, that under the influence of reiterated inflammations and incessant distension, the agglutination of the vaginal walls had gradually taken place. With force M. Saurel found that some of the adhesions gave way; a little blood escaped. The age of the patient, and her unwillingness to have her condition remedied, induced him to desist.—*Revue Thérapeutique du Midi.*

RETENTION OF THE CATAMENIAL DISCHARGE FROM IMPERFORATE CONDITION OF THE VAGINA.

M. Cabaret details an instance of this affection occurring in a girl twenty years old, of sound constitution, and who had been in the enjoyment of good health up to the age of fifteen years.

At this period all the symptoms which precede and accompany menstruation appeared, with the exception of the discharge. The abdomen became the seat of uneasy sensations, pains in the lumbar and pelvic regions occurred, and the patient suffered from spasmodic affections, violent headaches, etc. All these symptoms, which abated for some days, returned with increased violence every four or five weeks. At a later period, the abdomen began to increase in size, and became as large as in advanced pregnancy—some persons, indeed, believing that the girl was *enceinte.*

M. Cabaret having been called in, found, upon examination, a rounded tumour of a livid, blueish colour, and soft and fluctuating upon pressure, bulging between the labia majora. A tumour still larger existed at the hypogastrium.

Having placed the patient in the position for applying the forceps, and an assistant separating the lips of the vagina, the surgeon seized the central portion of the tumour with the small forceps of Museaux, and drawing it towards him, he cut out a part of it with a curved scissors. Immediately a torrent of blood escaped at the small oval opening thus made, and continued to flow to the amount of at least five pints. The blood thus evacuated was black, thick, and inodorous. Its flow was increased by pressure on the abdomen. The uterus rapidly contracted, and did not remain of a globular form, as after delivery. The symptoms almost entirely disappeared as soon as the operation was finished.

Injections and hip-baths were ordered. On the fourth day slight fever occurred, and on the fifth the vaginal discharge had become serous and somewhat fœtid, and the opening in the vagina having closed, a small tent was introduced, and renewed several times daily. On the eighth day all the symptoms had disappeared.

The catamenia took place fifteen days afterwards, and recurred again at the end of a month. Since that time the girl has menstruated regularly, and none of her old symptoms have reappeared.—*Revue Thèrapeutique Medico-Chirurgicale.*

RUPTURE OF THE PERINEUM AND RECTO-VAGINAL FISTULA TREATED BY CAUTERISATION.

M. J. Cloquet, in a memoir submitted to the Academy of Sciences, communicates the success with which he has adopted this mode of treatment in several cases of perineal rupture and recto-vaginal fistula. His method of treating these cases is exactly according to the principles laid down by him in reference to the treatment of split palate by cauterisation (and given, at more length, at p. 432 of the last No. of the *Monthly Journal*). With regard to its efficacy in the present instance, he says, that he is enabled from experience to affirm that the edges of the fissure become veritably united, and that the new cicatricial tissue is easily recognisable by its peculiar colour. Whatever may be the explanation of the manner in which this re-union takes place, at all events it is certain that it does so, provided the treatment be continued for a sufficient period. M. Cloquet terminates his remarks by bringing forward several cases illustrative of the complete and comparatively rapid success attending this mode of operating.—*Gazette des Hop.*

SURGERY.

EXCISION OF WRIST. BY MR STANLEY.

A boy, some twelve or thirteen years of age, has just left St Bartholomew's Hospital, seven of the bones of his carpus having been excised, some weeks since, by Mr Stanley, one only, the trapezium, we believe, being left. The boy has apparently most excellent use of his hand, wrist, and forearm; one, in fact, could scarcely conceive such a formidable operation had been performed, as, through the trapezium and thumb, very considerable "hinginess" is preserved, and the joint almost as if not operated on at all. The boy was originally brought in for amputation, having suffered some time previously from a fall, which injured and broke the wrist, and was followed by large abscesses and tedious fistulous openings round the joint. As the disease was not complicated with scrofula, Mr Stanley thought it a good opportunity to save the limb. His mode of operating, we believe, was somewhat of an improvement on that more usually adopted, as the result has shown. In operating generally on the wrist, the extensor tendons on the back are "drawn aside," to allow the operator to get at the bones of the carpus. Mr Stanley, on the contrary, believes this is a wrong movement, as the tendons thus almost invariably will slough. What is there to prevent tendons, when cut across, from uniting again, Mr Stanley asks very naturally; and as far as this one case goes, we should be inclined to say, there is no difficulty in the matter. Mr Stanley, accordingly, in operating, made a free semicircular incision above the wrist, turning back a considerable flap, together with tendons and integuments; the excision of seven bones of the wrist was then effected, and this flap laid down again. The boy now has very remarkable use of his fingers. In place of the bones of the wrist, Mr Stanley believes there is now a mass of fibrous tissue, with specks of osseous matter possibly disseminated through it, added to the trapezium—a very good substitute for no wrist at all and amputation of the arm.

As originally intended, this case is of interest in relation to four other cases of excision of the wrist, two by Mr Fergusson, with the usual H incision, to save the tendons, one by Mr Erichsen, and one by Mr Simon. In one case, after Mr Fergusson made an incision up the ulnar, one at the radial side also at the back of the wrist, with a transverse incision above, all the bones, as in Mr Stanley's case, except the trapezium, were removed. The operation was described "as of an extremely laborious character." In two of the cases the difficulties are described as surmounted by lateral incisions, and in one case by enlarging the orifice of a fistulous tract already existing, Mr Erichsen making a transverse incision over the centre of the dorsal aspect of the joint, with two others at right angles, and thus removing the bones from between the extensor tendons. In Mr Stanley's case, the incision, as we have already stated, was of a semicircular shape, freely dividing both integuments and tendons.—*Lancet.*

CASE OF WOUND OF THE RIGHT SIDE OF THE NECK WITH A CASE KNIFE, TRANSFIXING THE ŒSOPHAGUS, AND WOUNDING THE LEFT PLEURA AND APEX OF THE LUNG ; WITH FATAL ISSUE. BY EDWARD HUTTON, M.D.

Catherine Kavanagh, æt. 22, presented herself at the Richmond Surgical Hospital, on Monday the 19th of March, 1855, at six o'clock P.M. In an altercation with another woman she had received a wound, three-fourths of an inch long, on the internal side of the right sterno-mastoid muscle, a little more than an inch below the inferior margin of the thyroid cartilage. A probe was introduced into the wound, which, however, did not make its way to any depth. There was no indication of any wound of the trachea, the respiration being unaffected, and there was scarcely any hæmorrhage ; under these circumstances the wound was dressed, and she was allowed to depart in custody of the police. About an hour afterwards she was brought back much changed for the worse ; she was very weak and pale, and had hurried breathing. There was an emphysematous swelling for some space around the wound. The patient was immediately admitted, and Dr Hutton was apprised of the case. When he arrived at the hospital she was asleep, lying on her back, with her head turned to the right side ; the eyes half open ; the countenance pale, and expressive of distress, but her respiration was not so disturbed as it had been. The wound was as before described. Dr Hutton introduced the point of his forefinger into the wound, and found the side of the trachea quite bare, the knife having passed through the sterno-thyroid and hyoid muscles. He thought that he felt some irregularity on the side of the trachea, and from the emphysema concluded that the trachea had been wounded. On giving her some water to drink, it gushed out immediately from the wound, together with some bubbles of air. Dr Hutton expressed his fear that the œsophagus was also wounded, but remarked that, in some cases of wounds of the trachea *alone,* as after the operation of tracheotomy, liquids swallowed sometimes flowed out at the wound. It was directed to give her drink from an elastic bottle, through a tube, passed down the œsophagus. This was attempted by the resident pupil, but found impracticable from the obstruction which the attempt occasioned to her respiration. On the next day the report was that she had had a restless night, felt weak, and complained of pains in her back and head. At the time of Dr Hutton's visit she was sitting up, supported by a bed-rest and pillows. Her face was much flushed, of a dark-red hue, and she complained of pain in her head. Her breathing seemed more easy ; there was little or no emphysematous swelling about the wound ; the pulse was frequent and weak, and she looked ill. In the latter part of this day her breathing became very hurried, and her pulse rose to 140 ; and after a restless night she died at about half-past eight o'clock A.M. on the following morning, thirty-eight hours and a half after the receipt of the injury.

Post Mortem Examination.—The course of the knife in inflicting this wound, was as follows :—It passed through the integuments, platysma, fascia, sterno-thyroid and hyoid muscles, to the outside of the trachea, without wounding this tube ; traversed the œsophagus at its anterior part from right to left, and obliquely from above downwards; passed to the left side of the neck, and penetrating the cone of the left pleura, inflicted a wound on the apex of the left lung. This latter wound was about one-fourth of an inch in extent, and very superficial ; slight induration surrounded the puncture from extravasated blood. The left pleura contained a large quantity of serum, mixed with lymph, and also air. The lung was collapsed, and had patches of lymph on its surface. The mucous membrane lining the trachea was very vascular. There was no artery or vein of importance wounded.

Remarks.—In the systematic works on surgery, a wound of this nature, involving the pleura and lung in the neck, has not been described, or even contemplated, except in the operation for tying the subclavian in the first part of its course, or in removing tumours from the base of the neck, in which cases the pleura has been wounded. In this case the left pleura and lung ascended in the neck unusually high, to at least the fifth vertebra, and was therefore liable to be wounded by a penetrating instrument entering so high as the site of the wound here described. The case seems to be of some importance, as it seemed at first view much more probable that the emphysema, which was limited in extent and duration, arose from a wound of the trachea than from that of the lung ; the tube was, however, altogether intact, and the fatal issue of the case was the result of the injury of the lung.—*Dub. Hosp. Gaz., May* 15.

CHRONIC DISEASE OF HEAD OF FEMUR ; LODGMENT OF A MUSKET BALL IN IT FOR TWELVE YEARS. BY WILLIAM K. SWETTENHAM, M.D., STAFF SURGEON AND PRINCIPAL MEDICAL OFFICER TO THE ROYAL INFIRMARY, DUBLIN.

Martin Feeny, æt. 39, 3d Buffs, was admitted into the General Military Hospital, Dublin, February 1st ; a labourer prior to entering the service, in which he has been twenty years ; states that he received a gun-shot wound at the action of Punniar, in India, 29th Dec. 1843, the cicatrix of which was observed to be a hand's breadth below the crest of the ilium, and in front of the great trochanter of left side, this being the aperture of inlet of the ball, which he stated was never extracted, and therefore no aperture of exit remained. This man formed one of a party of sick of the depôt, 3d Buffs, marching from Newry to Kinsale, and in passing through Dublin was lodged in the above hospital, but found unable to proceed on the following morning from extreme debility. He had then diarrhœa with fever, indicated by foul white tongue and rapid pulse ; a fistulous orifice existed at the cicatrix of the wound, discharging copiously thick pus ; a probe introduced into this orifice was felt to grate on denuded bone, and to pass easily downwards in front of the thigh, where existed a large fluctuating tumour ; this was diagnosed as a large abscess deeply seated under the muscles in front of the left thigh, and extending downwards to the inferior third of the limb ; an incision, small and valvular, was made into the thinnest, which was also the most depending part, and matter allowed to escape gradually. Carminative medicine was administered, and poultices applied. He is reported going on pretty well up to Feb. 7. The diarrhœa controlled and fever less ; allowed nourishment, with wine. Again, on the 12th, diarrhœa returned, reducing his pulse considerably ; there is a bad fœtor about him, with copious discharge from the abscess, and slough forming on the sacrum ; muttering delirium setting in. . The usual palliative remedies were adopted ; he was ordered acetate of lead with opiates ; he continued in this semi-comatose state, constantly muttering, and taking chiefly wine as nourishment up to the fifteenth. Having passed, during the previous night, involuntarily, a quantity of urine, which seemed to contain pus, he died on the fifteenth day, at three o'clock P.M. This man is stated to have performed his duties, with slight intervals of outbreak of the wound, up to the day of his admission into hospital.

Post Mortem Examination twenty-two hours after death.—Head and thorax were not examined. The body much emaciated, and large black slough on the sacrum. The course of the abscess in front of the thigh being laid open, the muscles of the limb were found completely dissected from the bone, which, down to its inferior third, was denuded of its periosteal covering. The capsule of the hip joint was found thickened and perforated in two or three places, anteriorly and posteriorly; the neck of the femur anteriorly, and the great trochanter posteriorly, completely deprived of their periosteal coat, presented to view the well-marked appearance of diseased bone, resembling the partial solution of loaf-sugar in a fluid; the cartilage of the head of the femur being also partially ulcerated. The ball, never having been extracted, was searched for, and after some examination its situation was detected by the observance of a small orifice (capable of admitting only a small sized probe), in the direction of the head of the great trochanter, in the immediate vicinity of which an accessory piece of bone was thrown out like the lesser trochanter. This caused Dr S. to excise a wedge-shaped portion of the bone, and the musket ball was found neatly embedded in the head of the great trochanter, very little altered in its shape. A quantity of purulent matter was found in the medullary canal of the bone. The bladder was examined and found to contain the same muddy urine as he passed, but there was no disease visible in the viscus or in the pelvis. *The specimen was presented to the museum of the Richmond Hospital.—Dub. Hosp. Gaz.*

NOTES ON LITHOTRITY. BY SIR B. C. BRODIE, BART. READ BEFORE THE ROYAL MEDICAL AND CHIRURGICAL SOCIETY.

The author adduced reasons why this operation was not applicable to the period of youth, nor generally common or necessary in females. He preferred the forceps worked by a screw to that in which the force is applied by means of a rack, since the latter, though affording some advantages in the way of greater expedition, must be manifestly deficient in power as compared with the screw. The author remarked, that no prudent surgeon would willingly undertake this operation unless the bladder admitted of the injection and retention of from four to six ounces of tepid water; and that where this power had been lost, it had in all his cases but one been restored by keeping the patient in the recumbent position for seven or fourteen days, and injecting the bladder daily. He then described the steps of the operation, urging the great necessity for the gentlest possible manipulation of the forceps, that injury may be avoided, pain diminished, and, by consequence, the bladder rendered less prone to contract upon its contents; that, with these points in view, the forceps should never be used as a sound for the purpose of exploring the bladder or ascertaining the position of the calculus, but that the convex part of its curved extremity should be brought into contact with, and gently pressed against, the posterior and lower surface of the bladder by the elevation of its handle; that if, when in this position, on the blades being separated, the stone does not fall into it by its own weight, the instrument may be slightly struck on one of its sides, which slight concussion will probably dislodge the calculus from its fixed position and cause it to fall; if unsuccessful in this, the forceps may be very cautiously turned to one side or the other, and the same rules followed in that position as before; but a freer use of the instrument should never be made, not even in cases of enlarged prostate gland. For such cases the author advocated the value of an apparatus by which the shoulders may be suddenly lowered and the pelvis elevated, the calculus being thus thrown into the fundus of the bladder. With the same object, the patient may be directed to change his position from side to side, or to walk about, the bladder being emptied and again injected. Caution was given against the use of any kind of forceps which retains a considerable portion of the detritus within its blades, as being liable to stretch and tear the urethra, induce rigors, and even infiltration of urine and abscess. This happened to the author in four instances, two of which died. The extent to which a calculus may be crushed at any one operation, the author stated, must depend upon the amount of inconvenience suffered by the patient, which varies materially; but, upon the whole, he thought it more expeditious, and generally much more safe, to be content with a moderate progress; and, with a view to form a better opinion of what the patient can bear without risk, he preferred not to put him under the influence of chloroform. The author gave it as his opinion, that the inflammation of the mucous membrane of the bladder, induced by calculus, and indicated by great irritability of the organ, and the copious secretion of mucus, does not form an absolute objection to the operation, although it is doubtless a reason for proceeding with more caution; for, on the contrary, it often happens under such circumstances, that the crushing of the calculus is followed by an alleviation of all the bad symptoms. The patient should not be dismissed as cured while any symptom of calculus remain; a portion may be discovered after patient and repeated examinations, which, if left, would have formed the nucleus for the rapid formation of another stone. The author then referred to the difference in the density, and therefore the force required for the crushing of different calculi, as dependent upon their chemical composition. In cases of copious deposit of the soft mortar-like material of phosphate of lime, the author had made use of a forceps, of which the fixed blade was made concave, so as to answer the purpose of a scoop, with great advantage. He had never met with a case of hæmorrhage to any amount in his own practice. He stated that, although the merits of this operation are best shown by cases of small calculi, when cure results after one or more crushings, yet very large calculi, indeed, even such as have a diameter of an inch and a half, may be readily and safely broken up with an instrument sufficiently strong, and without any other inconvenience than the frequent repetition of the operation. The author then communicated the result of his practice in 115 cases of lithotrity. In one case he had had occasion to perform it eight different times, in three others twice, but always for fresh formations. Of these 115 cases, 9 had an unfavourable result; in 5 instances death resulted from the operation; in 4 the fatal result was to be attributed to the co-existence of other disease brought into activity by the shock of the operation; in 3 of the 5 fatal cases death resulted from the formation of urinous abscesses; in 1 from fever and general constitutional irritation; in 1 from inflammation of the mucous lining of the bladder and copious mucous secretion prostrating the patient; in 3 of the 4 fatal cases the co-existing disease was seated in the kidneys; in 1 it was diarrhœa, and not positively connected with the operation, although inserted in the list. The author now again urged the great necessity for gentle and careful use of the forceps in this operation, showing that many of the imperfect recoveries are due not so much to disease of the prostate gland, to persistence of the original symptoms, or to undetected fragments, as they are to too rough manipulations and too prolonged operations on the part of the surgeon. The success of the operation was thus shown to have been as somewhat more than 12½ to 1; while, from various statistics quoted by the author, it would appear, that even admitting young children (so notoriously favourable for the operation of lithotomy, the recoveries being as 14 to 1), the proportion of recoveries after lithotomy to death stands as about 5¾ to 1.—*Lancet and Dublin Med. Press.*

GANGRENE OF THE ENTIRE MUCOUS MEMBRANE OF THE BLADDER.

The case occurred in the practice of M. Bauer of Wurtemburg, and was that of a woman, 26 years of age, who died in the third month of pregnancy. For three weeks previous to her death she suffered from retention of urine, which could not be relieved by the catheter or medicines. A few drops of urine were only voided after the most violent efforts at expulsion, and the symptoms increasing in urgency, and the catheter having failed, the bladder was finally punctured and emptied. The patient fell, however, into a typhoid state, and died at the end of twelve days. The genito-urinary organs were alone examined. The uterus, which contained a fœtus about the third month, presented no lesion. On opening the bladder, it was found distended by a dirty purulent fluid, full of fibrinous flakes, and to contain besides a closed bag. The vesical wall was much thickened, and no traces of a mucous coat could be discovered on its internal surface. The muscular coat was generally quite bare ; here and there it was covered with a yellowish cheesy substance. The internal orifice of the urethra was closed. The sac found inside the bladder presented a greyish yellow coloration, and appeared structureless. Its external surface was covered with small villosities, and the point where the trocar entered could be made out. Its internal surface was in some places smooth, and of a greyish dirty colour ; in others it was covered with a granular deposit of uric acid. The urine had been contained in the interior of this sac, thus accounting for the catheter failing to draw off the water, the instrument having passed, on reaching the bladder, between the muscular coat and the wall of the sac. Professor Luschka of Tübingen made a careful examination. The wall of the cyst was found to be composed of fibres of cellular origin, with elastic fibres mixed among them, and of vascular and nervous ramifications, but all these tissues had undergone some alteration, chiefly in the form of granular deposit. M. Luschka could not recognise any trace of epithelium on the internal surface of the cyst, and came to the conclusion that this cyst was the mucous membrane of the bladder, which had been detached throughout its whole extent, very probably the result of a diphtheritic inflammation. An exudation took place in consequence, into the substance of the sub-mucous cellular tissue. The nutrition of the mucous membrane being gravely interfered with, led to its complete separation.—*Virchow. Archiv. für. Patholog. Anat.* 1854.

THE ENTIRE SCROTUM AND PERINEUM, WITH ONE TESTICLE AND ITS CORD ATTACHED, AND NEARLY ALL THE INTEGUMENTS OF THE PENIS TORN OFF.

Dr Robert W. Gibbes, of Columbia, S. C., relates (*Charleston Medical Journal*, March 1855) a very interesting case of this. The subject was a coloured man, 22 years of age, who was caught by the shafting in a foundry, and the following sustained :—" The entire scrotum was torn off, with the skin and cellular tissue, from two and a half inches above the spine of the pubis down to the edge of the sphincter, and including all the breadth of the perineum, together with the left testicle with five inches of its cord attached, and all the integument and cellular covering of the penis, except a rim nearly half an inch wide at the extremity, and continuous with the mucous membrane of the prepuce."

When seen by Dr G. the patient was suffering most acutely. Chloroform was immediately administered, and on examination the right testicle was seen hanging down by its bare cord, and apparently covered only by the tunica vaginalis communis as high as the abdominal ring, where the elastic feel of the intestines was distinctly perceptible, as well as on the opposite side, where the end of the cord was so retracted as to render its ligation impossible. Not more than half an ounce of blood could have been lost, as scarcely any oozing was observed, and the parts separated were almost as clean as if they had been sponged. The gap in the perineum was brought together by three points of the interrupted suture, and, as it was impossible to form a covering for the raw surface and remaining testicle, a simple lint dressing was applied, the penis supported on the left thigh, and the testicle on a small bran cushion placed between the legs.

The patient recovered, and his sexual appetite, he says, is as great as before the accident, and coition as agreeable as ever ; the only difference, he observes, is that the semen " does not come as free." One of his fellow-workmen said to me, " Oh, he is as good a man as ever," to which Henry replied *that he believed he was.*

OPERATIONS PERFORMED IN THE GENERAL HOSPITAL OF MADRID DURING 1853.

			Cured.	Relieved.	Died.
Amputations of	Breast,		2	0	0
	Metacarpus,		1	0	0
	Fore-arm,		3	0	0
	Arm,		1	0	0
	Fingers and toes,	Thumb,	5	0	0
		Index,	4	0	0
		Middle,	2	0	0
		Ring,	2	0	0
		Great toe,	2	0	0
		Second toe,	1	0	0
		Third toe,	1	0	0
		Fourth toe,	1	0	0
	Thigh,		3	0	1
	Leg,		5	0	3
Removal of polypus from vagina,			1	0	0
Operation for congenital phymosis,			1	0	0
Removal of head of humerus,			0	0	1
Operation for relief of stricture of urethra,			1	0	0
Operation for freeing upper eyelid,			1	0	0
Dilatation of an abscess situated in the upper part of chest, and removal of a portion of the sternum,			1	0	0
Removal of lipomatous wen,			1	0	0
,, ,, venereal warts,			2	0	0
,, ,, a portion of both inferior eyelids in a case of entropium with ulceration,			0	1	0
Removal of hemorrhoids,			3	0	0
Extirpation of unhealthy swellings or pimples,			1	0	0
Extirpation of a cancer from lower lip,			2	0	0
Removal of a syphilitic swelling,			1	0	0
Extirpation of a tumour of stony hardness from under the subaponeurosis, seated in the muscle,			0	0	1
Extirpation of lipomatous tumours,			2	0	0
,, ,, condylomatous ,,			1	0	0
,, ,, fibrous ,,			1	0	0
,, ,, cancerous ,,			1	0	0
,, ,, sarcomatous, ,,			1	0	0
,, ,, encysted wens,			2	0	0
,, ,, a malignant fungus affecting the inner angle of the inferior eyelid of left eye,			1	0	0
Operations for fistula in ano,			4	0	0
Operation for relief of paraphymosis,			1	0	0
Puncture of hydrocele,			2	2	0
Puncture of hydrocele with injection,			2	0	0
Resection of the alveolar border of left inferior maxillary bone,			1	0	0
			67	3	6
Total,			76		

The preceding statement which appears in the "Semanario Medico Espanol" of 1st February 1855, is interesting, as affording a view of the state of operative surgery in the Spanish capital. We learn from the "Crónica de los Hospitales," that besides the reduction of dislocations and fractures, opening of abscesses, extirpation of small tumours, operations of the taxis, catheterism and paracentesis, and others in minor surgery, there have been performed seventy-six operations, which, with their results, are tabulated.

The following table shows the different months in which these operations were performed, with the number of the operations, and their result in each month :—

	Cured.	Relieved.	Died.		Cured.	Relieved.	Died.
January, . .	5	0	2	July, . . .	3	0	0
February, . .	4	0	0	August, . .	4	0	2
March, . . .	3	0	0	September, . .	13	0	0
April, . . .	7	0	0	October, . .	6	0	0
May, . . .	7	2	1	November, . .	5	1	0
June, . . .	5	0	1	December, . .	5	0	0
					67	3	6

In the greater number of the cases, chloroform was employed, as is generally practised in the Hospital, and without having to regret the occurrence of any of those unfortunate accidents which have taken place in other countries.—*Prensa Medical Espanola, in Semanario Medico Espanol*, Num. 37.

Part Fourth.

MEDICAL NEWS.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXXIV. 1854–55.

May 16*th*, 1855.—William Seller, M.D., President, in the Chair.

NOTE ON THE TERMINATION OF A CASE OF ANEURISM, WITH CONTRACTION OF THE PUPIL ON THE AFFECTED SIDE. BY W. T. GAIRDNER, M.D.

Referring to the former notice of this case (for which see the *Monthly Journal*, January 1855, p. 71), Dr W. T. Gairdner intimated that it had since terminated fatally. There were several points of interest in regard to its symptoms and *post-mortem* appearances; but the most remarkable and novel fact was the one then demonstrated to the Society, viz., that one of the signs of an aneurism in the lower part of the neck, pressing backwards deeply towards the vertebral column, might be an effect on the pupil similar to that produced in physiological experiments by the section of some of the nervous structures in that situation. In the present instance, the aneurism, which sprang from the arch of the aorta immediately behind the left carotid and subclavian arteries, had involved the sympathetic nerve at the lower part of the neck, the roots of several spinal nerves, the lower part of the emerging brachial plexus, the vertebral artery, and one or two transverse processes of the cervical vertebræ which had been eroded, so as to place the tumour in contact with the spinal canal at the level of the seventh cervical spine. It was difficult, therefore, to say which of these important structures had been most directly concerned in the production of the appearance of the pupils alluded to. The fatal issue had taken place by hæmorrhage into the œsophagus.

[A dried preparation of the eroded cervical vertebræ was handed round.]

Dr Sanders observed, that, as the inferior cervical ganglia of the sympathetic could not be found on dissection, and had in all probability been pressed upon by the aneurism, he considered Dr Gairdner's case to illustrate the old physiological experiment of removal of the cervical ganglion, rather than the recent experiments of Budge and Waller; for, in their experiments, where the effects (contraction of the pupil, etc.) were produced by division or excision of the spinal cord, or of certain of the spinal nerves, it was essential for demonstration that no lesion or interruption of the sympathetic chain itself should exist, but only an injury of the spinal cord sending filaments to the inferior cervical ganglion, or injury of these nerves themselves. Whatever else Dr Gairdner's case might show, he (Dr Sanders) could not find any evidence in support of Budge's views, although he had great confidence in them from the physiological experiments.

Dr Myrtle said, it was of importance to know whether this contraction of the pupil had not existed previously to the development of the aneurism. A patient of his own, who had lately died, at the advanced age of eighty-five years, had from his infancy exhibited not only a difference in the size of his two pupils, but also in the colour of the irides.

Dr John Struthers said, that it was evident from the preparation that the aneurism, although it had opened the side of the spinal canal, had not reached far enough in to cause direct pressure on the spinal marrow. At least, the sixth and seventh cervical nerves must have been much pressed upon, which explained the incomplete loss of motion and feeling in the extremity generally, as, by the interlacement of the plexus, each of the large nerves of the arm is derived in part from all or several of the nerves which form the plexus. The inferior cervical ganglion of the sympathetic must also have been much compressed by the aneurism. It was impossible to draw any fair conclusion from this case, towards explaining how the contraction of the pupil was caused. It might be by the spinal nerves through the cord, or by the sympathetic, or in some other way. The state of our knowledge regarding the influence of the sympathetic in the *upper* part of the neck on the pupil might be thus stated, chiefly from Dr John Reid's experiments. Division of the sympathetic in the cat is immediately followed by contraction of the pupil, which remains permanent, or for a long while, when a portion of the sympathetic is removed, to prevent reunion. There is also protrusion of the third eyelid, from retraction of the eye. In the dog the same result follows, and in addition, congestion of the conjunctiva, which comes on in a few minutes. In rabbits, on the contrary, Dr Reid was unable to obtain these results. It was difficult to explain these results anatomically, as the connection of the sympathetic to the third nerve, which supplies the iris, is not large or very constant; and it by no means followed that this was the kind of explanation to be looked for. M. Bernard has since obtained very curious and interesting results of a different nature. The same experiment produced a great *increase of the temperature* of the same side of the face, perceptible to the hand; and, by a thermometer introduced into the nose, it was found to be sometimes as much as 10° Fahrenheit higher than on the other side. When the ganglion was removed, the effect was still greater, and remained for months. Besides the increase of heat, there was *also marked increase of the sensibility* of the same side of the face. There was no inflammation or other apparent morbid change to account for these effects. (See *Gazette Médicale,* Feb. 21, 1852.) These remarkable results pointed to another mode of explaining the effect on the pupil, irrespective of direct anatomical nervous connection.

Dr Gairdner's case was a very interesting one; and he had the merit of having called the attention of physicians to this point; and it remained to be seen whether contracted pupil was a frequent concomitant of such aneurisms. We must always recollect that our experiments related to the lower animals; that the results among these varied; and that the same did not necessarily apply to man. In the present state of the facts, no physiological theory could be reasonably framed in explanation.

Dr W. T. Gairdner agreed with the speakers in the main. He did not know how long the contraction of the pupil had existed before the case came under his observation. He had not brought forward the case as conclusive on any point in physiology, but rather as an illustration of a symptom in thoracic aneurism, with which physicians ought to be acquainted, and on which physiology threw, even in its present imperfect state, considerable light. Dr G. believed that physiology and pathology would be best advanced if they were made at all points to illustrate each other as far as possible; and, if other cases similar to the present were observed more carefully than hitherto, no doubt physiological science, as well as the practical study of disease, would reap the advantage.

ACCOUNT OF CERTAIN ANOMALOUS CASES RESEMBLING VARIOLA AND SCARLATINA.

BY W. T. GAIRDNER, M.D.

The author made some remarks on these anomalous cases, and on certain forms of disease closely resembling them which he had observed at different times. According to Dr W. T. Gairdner's experience, some forms of syphilitic eruption very closely simulated variola; and, though the distinction could generally be made either at once or after a short period of observation, yet cases were not wanting in which the febrile concomitants and the character and distribution of the eruption combined to deceive the practitioner until after the lapse of several days. A case of this kind, in which the erruption appeared to be determined in a syphilitic constitution by the use of hydriodate of potass, was detailed to the Society at some length; and others were more shortly alluded to. During the past winter, Dr Gairdner had witnessed a number of cases which he was disposed to consider as irregular forms of scarlatina. The regular type of the disease, although not present in an epidemic form, had, nevertheless, been occurring throughout the winter in Edinburgh and the neighbourhood, in isolated cases and groups of cases. In Leith, there had been few cases, and those very mild. In Corstorphine and in Cramond, cases of scarlet fever had likewise occurred. In London, it appeared from the Registrar-General's returns that scarlatina had been twice as frequent during the April quarter as during any similar period for the last five years; and Dr Gairdner thought it not improbable that an epidemic of scarlatina was to be looked for in the course of the summer in Edinburgh. His attention had been attracted, while performing dispensary duty last winter, by a considerable number of those submaxillary and cervical suppurations or acute swellings which are known to accompany scarlatina in many cases. There were comparatively few of these in which the history of an eruptive disease could be traced; and in two cases, in which eruption distinctly presented itself while the case was under observation, there were peculiarities in its character which were worthy of notice. In one, the eruption was discovered for the first time in the second week. It had been carefully looked for at a considerably earlier period, without result; and had altogether escaped attention, if indeed it occurred before. In its character and distribution it resembled roseola much more than scarlatina; and the case was published by Mr Geo. S. Sutherland, to whom it occurred, in the last number of the *Edinburgh Medical and Surgical Journal*, as a case of doubtful exanthematic disease. Shortly afterwards, a case of unquestionable scarlatina, with an ordinary eruption, and severe throat affection, occurred in the immediate neighbourhood (Blackfriars Wynd); and in this case, which was, like the other, fatal, the rare occurrence, first noticed by Dr Willan, presented itself—viz., a recurring eruption at a very late period of the disease—the thirteenth day; this secondary eruption being much brighter than the other. Dr Gairdner had repeatedly seen the eruptions of scarlatina and of small-pox much retarded, both in the date of their appearance and disappearance; and this not only in severe and irregularly developed cases like those just mentioned, but in some which ran quite a favourable, and, in other respects, a normal course. In one very mild case of scarlatina, he (Dr Gairdner) had seen the eruption appear somewhat late, and continue very bright throughout the greater part of the second week, when the patient, indeed, was quite convalescent. Dr Hamilton, of Falkirk—a good authority on scarlatina—had also repeately observed this retardation of the eruption, but, for the most part, in severe cases.

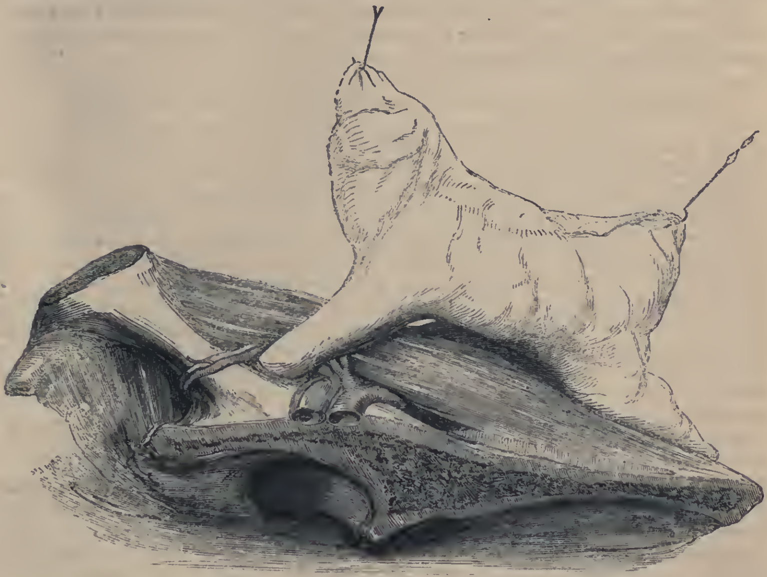
Dr J. D. Gillespie remarked, that he had lately seen a case illustrating what Dr Gairdner had observed as regarded a second erruption appearing in scarlatina. The patient was an infant nine months old, and was one of a family of nine children, who had all, except the eldest, had a second attack of the disease, the whole of them having had mell-marked scarlatina about a year previously. The infant had a copious florid eruption, and other ordinary symptoms, from which it appeared to be convalescing, when, about a fortnight subsequently, very severe coryza supervened, and, some days thereafter, a very extensive eruption appeared, resembling somewhat closely the eruption of measles. This eruption remained out two days, and then swelling of the parotid and cervical glands ensued, under which the little patient at length succumbed. Professor Simpson and Dr Priestley had both seen the case. The father of these children being himself a retired medical man, and a careful observer, there could be no doubt as to the recurrence of scarlatina in seven of his children.

CASE OF HERNIA, COMPLICATED BY IRREGULARITY OF THE OBTURATOR ARTERY.

BY JAMES SPENCE, ESQ.

[See Mr Spence's communication in the present number.]

Dr John Struthers had always looked carefully to the position of the abnormal obturator artery; and, out of several hundred subjects examined, he could not recollect of one in which the artery was so placed that it would unmistakably have surrounded the neck of a femoral hernia. It might, however, be so placed more frequently, perhaps in one in a hundred cases. Practically, it was enough to know that it occurred occasionally, and as, in ordinary circumstances, it is absolutely impossible to ascertain its presence or absence before dividing the stricture, the precautions must be taken alike in all cases. The peculiarities of Mr Spence's interesting case required a much larger division than usual. Before he had ascertained the existence of the artery, he (Mr Spence) had already divided as much as is usually sufficient to allow of the return of the hernia, as the finger could be introduced. Hence he was able to feel for the artery; and requiring a larger incision, which would in unskilful hands have sacrificed the artery, he cut down upon it and secured it, and his having succeeded in doing so reflected the greatest credit on him both as anatomist and surgeon. In ordinary circumstances, however, the surgeon had no means of knowing whether the artery was present or not. Blunting the edge of the knife might be a good enough precaution, but the great practical rule would still be to make as limited a division of the stricture as possible, and a very small one is usually enough. If, in doing so, the artery should be divided, no blame should be attached to the surgeon, even were he to fail in an attempt to secure the vessel. The artery might be there and not be divided, as was well shown by the case alluded to by Mr Spence, and which occurred to his lamented colleague, Dr Mackenzie, who was just about to publish it last year when he left us for the seat of war. Opposite is a wood-cut, now in my possession, which Dr Mackenzie had ordered. The patient died from some other cause, before the wound had healed; and, on dissection, the abnormal obturator artery and vein were found to occupy the dangerous position, as seen in the drawing, but had not been injured. Dr Mackenzie had shown him the preparation; and both were surprised how the artery had escaped, as it lay so near. He (Dr Struthers) was glad to have this opportunity of making the case known.



Dr R. J. Mackenzie's case, in which the abnormal oburator artery, although encircling the neck of the sac, had escaped division.

Nor would the division of this artery be necessarily fatal. A larger artery, the deep epigastric, had been found to have been divided in the operation for inguinal hernia without any hæmorrhage following. This, however, as far as is known, had occurred only once, and there were several instances in which its division in that operation proved fatal, and several in which a similar result followed the operation of paracentesis, when not done in the middle line; and a few cases also, one related by S. Cooper, and several quoted by Mr Spence to-night, in which division of the abnormal obturator in the operation for femoral hernia proved fatal. We must not, therefore, make too light of this much talked of danger. Even if the operation were performed with care, it was quite possible that the artery might be divided; and then it might be impossible to secure it. Mr Spence, however, had shown that when a large incision was required, the existence of the artery might be ascertained, and the danger overcome by doing as he did.

Mr Spence stated that Dr Struthers had misunderstood what he had said in reading the history of the case. He had merely divided the lower margin of the falciform process, and it was whilst trying to get the nail of his finger below the deeper constriction to guide the knife in dividing the stricture, that he felt the irregular vessel pulsating, and consequently, before any hernia, however small, could have been reduced. It was from thus ascertaining the presence of the artery, that he took the precaution of dividing the crural ring to only a very slight extent, at two different points of its circumference, so as to gain room to introduce the point of the finger still further to push the vessel upwards. And it was the precaution of careful examination, and limited division of the arch, in the first instance, which he wished to inculcate as one important deduction from the case.

Dr Struthers said, that his remarks regarding the impracticability of ascertaining the existence of the artery were intended to apply to the ordinary circumstances of the operation.

June 6th, 1855.—WILLIAM SELLER, M.D., President, in the Chair.

CASE OF TUBERCULAR LEPROSY. BY DR BROADBENT.

The patient was exhibited to the society. The case will appear as an original communication in the next Number of the Journal.

Dr Otto Spiegelberg, at present visiting the Edinburgh Medical School, said he had observed four or five cases of the disease at Vienna. The patients had principally come from Croatia and the lower districts of Austria, bordering on the Adriatic. The disease appeared to commence in the eyebrows, which presented at first a simple form of hypertrophy. Professor Hebra had been able even at that early stage to make a correct diagnosis by remarking a certain melancholy or sorrow attendant on the malady, and which he regarded as one of its surest and earliest signs. It was believed to be hereditary in the districts where it occurred; but mistakes were frequently made by a wrong diagnosis between the disease in question and cases of lupus and secondary syphilis. In a visit recently paid by Professor Hebra to Norway and Sweden, whole villages were found full of such patients. The government had now taken up the subject, and had introduced a system of regular separation of those affected, as propagation from county to county was found to be going on from the free intercourse with healthier communities. The only treatment employed in the Viennese hospitals consisted in the administration of iron and of good food; but, as a general rule, such patients soon died after reaching the capital. The few he (Dr Spiegelberg) had seen had all succumbed to tubercular disease of lungs and bowels.

Dr Simpson had observed but one similar case to that which had been shown to the society; and it was somewhat singular, that it came under his notice but a day before this case of Dr Broadbent's. A medical man from the country brought a patient for Dr Simpson's advice. It was suspected to be a case of molluscum; but as soon as the lady lifted her veil, Dr Simpson at once saw she was a leper, and that the disease was not molluscum. The lady was fifteen or sixteen years of age: her father and mother were English, but she herself had been born in Jamaica, and soon after was removed to this country. She had passed some time in India, in a convent in the Himalaya mountains; but she had never seen the disease there. In the succinct account of the malady, by Barnard Gordon, he speaks of the disappearance of the muscles between the thumb and forefinger as one of its most constant signs; and in this case, Dr Simpson observed that it was well marked, as the lady, in consequence, could only with great difficulty manage to pull on her gloves. Some time ago, another case, also under the care of Professor Syme, had come under his notice. The woman had come from Dunfermline. The disease was limited to the arm; no tubercles were to be seen on the skin; but only that curious kind of spontaneous amputation which was sometimes a mark of the Elephantiasis Græcorum.

The occurrence of these cases prompted the question, Whether the disease was not about to make its appearance once more among us? A clergyman from Unst had lately informed him that in his parish a woman had died under the care of Dr Edmonstone, with all the symptoms of what he (the clergyman) believed to be the old Orkney leprosy. In Canada, two hospitals had recently been established for the reception of such patients; and it was well known that the disease had spread enormously in Norway. In the last census, it was ascertained that in that country, with a population less than Scotland, there were more than 2000 returned as affected; and the question of checking this increase was one of no small importance to the Norwegian government, as such patients, from inability to follow their usual avocations, speedily became paupers. More cases occurred in some districts than in others; and in some parishes it had been found that one in every 100 of the population was a leper. With this increase in Scandinavia on the one hand, and the fact of the disease spreading along the coasts of America on the other, the question as to its probable reappearance on our own shores was a startling one, and should not be lost sight of.

As to its cure, there was little hope after the first stage had passed. Some Swedish journals spoke of prevention of the disease "according to the Scottish method;" which was, according to the writer, to enforce the castration of all the males affected with the disease. Dr Simpson's own papers on the subject, were quoted as the authority for the statement; which, however, was to be found in the work of Hector Boece, a writer in the time of James IV., where it is stated, that to stop madness, and to prevent the increase of leprosy, the males should be "libbit"—a practice, which Dr Simpson hoped, their Swedish neighbours now knew was not in vogue at the present day.

In other quarters of the world, the disease still made progress. From Mr Syme, at Jerusalem, he (Dr Simpson) had had an account of the symptoms as observed at the old leper-house there. At Zion-gate there was still a leper village; and, as in days of old, the poor lepers call to passing strangers from a distance—"they stand afar off." As to the question of contagion, Dr Wyse, who had seen much of the disease, had informed him that at an early stage it undoubtedly was contagious; and this opinion accorded with the universal practice of the countries where the disease was endemic—as in China and Burmah, where it had been observed in the recent expedition, etc. The disappearance of leprosy from Scotland was involved in great mystery, and was a question which could not now be solved; as great doubts rested on the cause of its present reappearance.

Dr Coldstream made a few remarks, and referred to a communication which he had received from Dr Hobson in China, and which contained an account of a new, and, as it appeared, successful remedy for this disease. [See *ante*, p. 50.]

An interesting conversation ensued on the identity of the leprosy at present seen in the East with the disease mentioned in Leviticus, in which Drs Beilby, W. T. Gairdner, and Professor Simpson, took part.

TERMINATION OF A CASE OF RHEUMATISM AND CHOREA, FORMERLY SUBMITTED TO THE SOCIETY. BY WARBURTON BEGBIE, M.D.

On the 24th of November 1852, Dr Begbie brought under the notice of the Society the details of a case of acute rheumatism, succeeded by chorea and affection of the heart, which had, during the previous summer, come under his notice in the practice of the New Town Dispensary. The case proved fatal on the 27th of May last, in the manner to be presently described; and as the subject of the connection of the two diseases, rheumatism and chorea on the one hand, and chorea and disease of the heart on the other, is one of more than ordinary interest, and the subsequent history of the case itself possessing its own illustrative points, Dr Begbie thought it right to put the Society in possession of the further details. Dr Begbie shortly recapitulated the chief particulars in the former history of the patient. At the time Dr Begbie first visited her on the 7th of June, 1852, she was ten years of age, a delicate looking but comely child, of fair complexion. She was then affected with rheumatic fever, the access of which had occurred two days previously. She passed through a very severe attack of this disease, without, however, the slightest evidence of cardiac complication; and towards the end of June was convalescent. She had been treated with calomel and opium; and before the former remedy was suspended, the mouth had become very slightly affected.

From the 7th to the 23d of June, Dr Begbie saw her daily; and thereafter, up to the end of the first week of July, frequently. On more than one occasion he examined the chest, but detected no deviation from health. On the 20th of July, not having seen her since the 7th, Dr Begbie was requested to visit her. She had then confirmed chorea. He was informed that this disease had been creeping on for some days, and that ever since her rheumatic attack she had been nervous and easily excited and alarmed, which was different from her previous character. The mother of the patient did not attribute the occurrence of the chorea to any particular cause, and was quite satisfied of its gradual development; but she was equally satisfied of its having been augmented by a fright sustained the day previous to his visit, the patient had then given a loud scream, and during the following night had awoke from sleep with the same. When Dr Begbie saw her, the choreic affection of the lower limbs was so aggravated as to render progression nearly impossible; the arms, especially the left, was similarly affected. The left side of the body was more markedly affected than the right. Articulation was greatly impaired; and she made most singular grimaces. She had never suffered from any nervous affection before. At this visit, Dr Begbie carefully examined the heart, and for the first time noticed a deviation from the normal sounds. A distinct blowing murmur accompanying the first sound, was heard most distinctly towards the apex of the heart. There was also a greatly increased action of the organ. For the choreic affection she was treated with laxatives and arsenic in the form of Fowler's solution.

From 20th of July up to 20th of September, the nervous affection perseveringly continued, at times augmented in severity, at times apparently yielding; at one period so severe as to confine the little patient to the house, at another permitting her to walk assisted by her mother, and even to visit Dr Begbie at the dispensary.

On the 23d September, the chorea was almost entirely gone; she walked well and steadily. The cardiac murmur continued distinct; it was clearly heard over the whole cardiac region; it was most distinct towards the apex, and was not propagated in the cervical vessels.

November 17th. She was quite free from all choreic movements; she expressed herself as well, except for the beating of the heart. The palpitation was at times severe. Murmur continued as before: no increase of precordial dulness. After this period, she was seen for a time occasionally; her symptoms remained very much as now detailed. In the following spring she manifested a disposition to grow, during that time she became pale, and suffered more from palpitation. She took, during a lengthened period, a combination of steel and henbane, and with very great relief to the cardiac palpitation.

She was afterwards removed to the country, and for a long time was lost sight of entirely.

From what Dr Begbie had since learned, it appeared that till last summer she continued to enjoy tolerable health, and not to experience any inconvenience, further than a degree of palpitation of the heart, from which she was never entirely relieved. In August 1854, she contracted a severe cold, and thereafter became for the first time effected by slight swelling of the feet. For the relief of this symptom, application was again made at the dispensary, and she fell under the care of Mr Bell, who for many months continued carefully to watch the progress of her disease. Owing to an increase of the swelling of the lower limbs, and the occurrence of other symptoms, Dr Begbie saw her in the month of November last with Mr Bell. She had then considerable œdema of both feet and ankles, and a slight puffiness of the face. The action of the heart was irregular; and the pulse varied, being at times frequent and very irregular, at others less frequent and irregular. There was an increase of the precordial dulness, and a distinct murmur accompanying the first sound of the heart, heard most distinctly towards the apex. The respiratory sounds were everywhere normal. The urine was not coagulable. In addition to these symptoms, there appeared to have been at various times during the preceding twelvemonth, a slight return of the choreic affection, but limited to the left side of the body, and transient in its duration; she had never suffered from any return of the rheumatic disease.

Under the use of squill in small and frequent doses combined at first with a little blue pill and the bitartrate of potash, the dropsical affection was speedily removed, and she was restored to her usual state of health for some time previous to its occurrence.

At this time, she had entered her thirteenth year, and had some months before menstruated for the first time. At uncertain and lengthened intervals menstruation continued to occur till a fortnight before death.

She continued to be carefully watched by Mr Bell, till about three weeks ago; when, during his absence in the country, Dr W. Begbie was requested to visit her again. She had been becoming gradually worse; the palpitation and irregular action of the heart increased, accompanied by dyspnœa and ascites, as well as general anasarca. In this condition Dr Begbie found her. The mitral murmur was audible, but less distinct than on the former occasion, owing to the rapidity and weakness of the heart's action. Diuretics and stimulants were administered; and for a few days her symptoms were alleviated. But the dropsical affection extended to the chest; and on the 27th of May she sunk.

On the evening of the 28th, in the presence of Drs William Gairdner and Matthews Duncan, Dr W. Begbie opened the body. Decomposition having advanced with marvellous rapidity, he limited the examination to the chest. The cavity of the left pleura contained a large quantity of serous fluid. The pericardium was free, and exhibited no signs of former pericarditis. The heart was large, its increased bulk was more owing to general dilatation of its cavities than to hypertrophy, though the walls of both ventricles, particularly the left, were to a certain extent increased in thickness. The aortic valves were rough, and the centre one somewhat shortened; but the mitral valves were much more decidedly the seat of disease; they were greatly thickened, and bore evident marks of by no means recent fibrinous deposit. Both lungs were œdematous, but otherwise free from disease.

The case was another illustration of the intimate connection subsisting between rheumatism and chorea—a connection which had been elucidated by various authors in this country, by one of whom it was at an early period brought under the notice of the Society. The relationship might vary under different circumstances; and in countries where acute rheumatism was not prevalent, the connection mentioned would be less liable to occur. It might be from some such cause that Romberg wrote that, while Bright had found that rheumatic affections are frequent complications and causes of chorea, his (Romberg's) experience and that of other writers did not coincide with this opinion. Of 128 cases of chorea collected by Sée, 61 were coincident with rheumatism; a proportion the more remarkable, as M. Sée observes, when we consider that rheumatism is extremely rare in young children. Of 11,500 patients admitted during four years into the Hôpital des Enfans Malades, at Paris, out of 109 rheumatic patients, 61 were also choreic. In by far the majority of instances (M. Sée calculates five times in seven, the articular rheumatism precedes the chorea.

Though chorea and rheumatism were frequently associated when there existed no cardiac affection, yet Dr Begbie was not aware of any precise observations in regard to the comparative frequency of the cardiac complication in such cases. For a time it was supposed that rheumatic pericarditis was the affection with which chorea was particularly apt to be associated. The object of Dr Bright's interesting paper in the *Medico-Chirurgical Transactions*, was to illustrate this view; and various theories were adopted in order to explain it; "it was supposed that some morbid condition of the membranes of the spinal canal had arisen, simultaneously with the inflammation of the pericardium;" and it was also conjectured "that the cardiac disease might operate in some ill-understood manner, upon efferent nerves of the cord, as an eccentric cause of the irregular movements." Since the theories or conjectures of this nature were broached, experience has determined that endocarditis is quite as common, if indeed not more so, than the inflammation of the heart's investing membrane. In the case submitted to the Society, the pericardium was healthy. Very many interesting points remain to be determined, more particularly as respects the exact time at which the cardiac affection, or the chorea, as may be, are developed. On this point, particulars full of interest are brought out in the papers of Dr Begbie, Dr Hughes, and Dr Kirkes. One peculiar point of interest in the present case was the occurrence of the cardiac murmur simultaneously with the development of the nervous affection. And this leads to the question of very great interest, as to whether organic disease of the heart, independently of rheumatism altogether, occurs in chorea. So far as the existence of a cardiac murmur is concerned, there can be no doubt that affections of the heart are frequently connected with chorea. Dr Kirkes' record contains three such cases. Romberg directly negatives the question started by declaring that he has only met with murmurs in chorea patients, in the vessels of the neck, and occasionally in the aorta, in the vicinity of the semilunar valves; but they were solely referrible to the anæmic condition of the patient, which gave rise to or accompanied the disease. Then the anæmic murmurs are without doubt very commonly heard in choreic patients, and the appearance and circumstances of the patients are just such as to lead to the probability of their production. But apart from such cases, and in no way connected with rheumatism, there is another class in which the evidence of the dependence of a cardiac murmur upon some other and more important cause than an anæmic condition of the blood, is all but certain. Dr Begbie had met with one such case; a boy, aged seven, was admitted into the hospital some years ago, suffering from a first but severe attack of chorea. Immediately on his admission, a loud musical murmur was detected accompanying the systole of the heart, and loudest at the apex. There was no history of rheumatism; under treatment, the chorea speedily subsided, but the murmur remained unaltered. Six weeks afterwards, the little boy died very suddenly. Unfortunately, Dr Begbie could obtain no examination of the body; but the manner of his death, taken in connection with the symptoms and physical signs of disease during life, left no doubt on his mind as to the heart having been organically affected.

A single case may be fairly regarded as exceptional and accidental; but Drs Addison and Babington, in several instances, have detected organic murmurs. And others had made the same observation.

CASES IN WHICH A COMMUNICATION WAS ESTABLISHED BETWEEN THE STOMACH AND COLON. BY W. T. GAIRDNER, M.D.

The author detailed to the Society two cases, one of which had occurred to himself, the other to Dr Kilgour of Aberdeen, in which a communication existed between the stomach and colon. Cases of this kind appeared to be rare, as Dr W. T. Gairdner had only been able to find three others recorded; one by Haller; one in the Catalogue of the Museum of St Bartholomew's Hospital, and one in Dr Abercrombie's work. The last had occurred to Dr Combe, and was the only one in which the symptoms were recorded in detail. In Dr Combe's case, vomiting of fæces had been the most characteristic symptom; this had not occurred in the cases either of Dr Kilgour or of Dr Gairdner. On the other hand, vomiting of food had not occurred in Dr Combe's case, and had been frequent in the other two. Dr Gairdner referred to the situation of gastric disease as the cause of these differences. In Dr Combe's case, the fistulous opening was in the great curvature and towards the left, while in the other two the pyloric extremity of the stomach was diseased, and in one of them (Dr Kilgour's) the pylorus was nearly impervious. There were too few facts to allow of secure conclusions being formed, but Dr Gairdner was inclined to believe that it would be found that fæcal vomiting was to be looked for chiefly in those cases in which the pyloric opening was free, and in which, therefore, the stomach was not overloaded with its own proper contents; while vomiting of food was to be expected in the opposite class of cases. Where fæcal vomiting did not occur, the diagnosis of a fistulous communication like that which existed in those cases must always be obscure. The diminished tendency to vomit food, and the rapid emaciation which might be expected to ensue, were not characteristic; because the ordinary course of cancerous stricture of the pylorus did not in these respects differ very materially from the condition in question. If, indeed, a marked and sudden alleviation of the vomiting occurred, simultaneously with a great reduction in the size of the stomach on percussion, and with the dejection of alimentary matters half digested, while the appetite continued strong and the patient was yet not nourished, a diagnosis might be arrived at.

ON THE DIFFUSION OF CHOLERA IN THE REMOTE DISTRICTS OF SCOTLAND.

BY W. T. GAIRDNER, M.D.

Dr W. T. Gairdner made a verbal communication on the results of some inquiries in which he had been engaged on this subject. He found that the epidemic of 1832 had passed with great rapidity to the extreme north, being apparently propagated along the fishing villages of the eastern coast as far as Caithness-shire. Aberdeen and Inverness had both been involved in the epidemic ; and the latter place had been again attacked, two years after, in 1834, when the greater part of the eastern coast was entirely exempt. Dr Gairdner suspected that the disease had on this occasion been carried along the Caledonian Canal, possibly from Glasgow or the neighbourhood, but he had not been able to make out distinctly the channel of communication. On the west coast, with the exception of a few cases at Stornoway, and possibly some in the island of Skye, he had reason to believe that no cholera had existed north of the Sound of Mull, nor in any of the Hebrides, with the exceptions just mentioned. He was still in want of information as to the periods of invasion, etc., of the disease on the south side of the Moray Frith, and at a few stations, such as Peterhead and Fraserburgh on the east coast. As regarded the progress of cholera in the interior, and particularly along the line of the Caledonian Canal, he was also imperfectly informed, although he had made attempts to get information both from medical men and clergymen. Dr Gairdner intimated his intention to publish shortly the details in his possession, and said that he would feel greatly obliged by being made the medium of any important information on the points indicated, whether as regarded the first or any of the subsequent epidemics.

The *President* intimated that this was the last meeting of the season; and after noticing in detail the various papers which had been communicated to the Society, with a few appropriate remarks he brought the session to a close.

MEMOIR OF THE LATE MARTIN BARRY, M.D., F.R.SS. L. AND E.

Martin Barry was born at Fratton, in Hampshire, on the 28th March 1802. His father lived here in retirement, but had property embarked in a mercantile concern in Nova Scotia. This was conducted by a brother, who resided there, as acting partner, their vessels trading to the neighbouring colonies, New Brunswick, Newfoundland, West India Islands, and to the United States. It was originally intended to qualify Martin for mercantile pursuits. With this object he received a liberal education, and, at his father's death, was placed for a term of years under the care of a judicious relation in America. At the expiration of this period, he fulfilled temporary engagements with several eminent firms, in order to increase his experience in commercial transactions. He never engaged in business on his own account, but preferred the medical profession, in order to gratify a love for science, and to apply his mental acquirements more fully in unison with his taste than a commercial life would allow. After thus being trained to business, he thereafter studied in the medical schools of London, Edinburgh, Paris, Erlangen, and Berlin. He became a member of the Royal College of Surgeons in Edinburgh, and obtained his degree of M.D. there in 1833, was a member of several societies, such as the Wernerian, Royal Medical and Physical, and eventually of the Royal Societies of London and Edinburgh.

Soon after graduating he went to Germany, and, as a pupil of the celebrated Tiedemann, at Heidelberg, was closely engaged for about a year in minute anatomical and physiological investigations. · At this time, as also during his Edinburgh studentship, he was well known for accuracy in dissection, and skill in making anatomical preparations.

Dr Barry was an enthusiastic lover of natural scenery, and devoted much time to botanical and geological pursuits. He annually visited some of the mountain and lake districts of Scotland during the college vacations; and after concluding his studies at Heidelberg in 1834, spent part of the autumn of that year in travelling much on foot through Switzerland. In the course of these wanderings he arrived at Chamouni on September 15th, and, apparently without any preconcerted intention of attempting such a feat, consulted guides as to the practicability of ascending Mont Blanc. It was then later in the season than any successful ascent had been hitherto accomplished, and much hesitation as to making the attempt was expressed by those he consulted. However, as four years had elapsed since the last ascent was made (by Captain Wilbraham), true also to the impulse of his then great physical energy and ardent temperament, Dr Barry resolved upon the enterprise, and accomplished it with safety to all concerned. His was the sixteenth ascent that had been made ; it occupied three days in going from and returning to Chamouni ; he was rewarded by a magnificent view from the summit, and by weather so remarkably fine, "that during the whole time," says Dr Barry, "I did not see a single cloud." A short account of this journey was published in the "Edinburgh New Phil. Journal," vol. xviii. In March 1836, he gave (and eventually published), two public lectures, in Edinburgh, on the same subject; their proceeds were presented to the Royal Infirmary ; and his excellent model of Mont Blanc, by which the lectures were illustrated, was presented to the University Museum. This ascent gained him the acquaintance of many distinguished persons. Among these was Baron Humboldt, who personally requested Dr Barry to translate from the German an account of his (the Baron's) " Two Attempts to Ascend Chimborazo." This translation appeared in the " Edinburgh New Phil. Journal," 1837.

On returning from the continent, and residing for a time in Edinburgh, in order to extend his medical knowledge by further attendance at the Royal Infirmary, Dr Barry was an occasional and ever welcome visitor in various private families he had known during previous years. Some of these were connected with the religious body (the Society of Friends) to which he belonged. By them he was valued for kind gentleness of heart, refinement of manners, extensive information, and a high tone of moral and religious principle. He naturally possessed a sensitive temperament, which was most obviously shown, when any opinions peculiar to himself were called in question or undervalued. This trait characterized him through life ; and owing to the tenacity with which he adhered to opinions once formed, some have considered him dogmatical, or even pedantic. But we must remember, that although his once ardent mental constitution led him to theorize, and even to *believe*, where many would have waited in doubt, it was a conscientious honesty of purpose which taught him to avow and defend, for he could not conceal what he really thought to be true. Having little relish for mere amusement, and possessing something allied to a fixed distaste for convivial company, however intellectual, he never mixed largely in general society. Being, however, a good classical scholar, conversant with the literature of his own country, as well as with that of France and Germany, familiar with physiological knowledge, full of ardour for its extension, and possessed of great skill in using the artist's pencil, he devoted almost all that time to study which many men with other tastes would have given to what is called pleasure.

Almost the only evidence respecting the time when Dr Barry turned his special attention to embryological pursuits, is to be inferred from his writings alone; he has left scarcely any other materials from which we can collect and record the progress of his scientific life. His letters seldom contain much reference to the manner in which his time was occupied, for some intimate friends with whom he most frequently corresponded were unconnected with the medical profession, or had little relation with the scientific world. He never married; and, having no permanent place of residence, spent the last twenty years of his life in different parts of England, Scotland, and Germany. Edinburgh was a favourite place of abode, and at intervals, varying from a few weeks to a year or two, ever since his studentship, he has continued to visit this city, and remained during periods varying from a few days to upwards of eighteen months. His unfailing friends here were John Wigham, Esq., and his excellent lady, of Salisbury Road. With Mrs Wigham he corresponded more frequently than with any one else, except his own relations, and from her we have ever been able to hear of Dr Barry when he was absent from Edinburgh.

He appears to have commenced making himself familiar with the literature of embryology in 1835; and apparently about this time he was again on the continent, engaged with Professors Schwann and Rudolph Wagner in histological observations. Few men, indeed, have had more frequent personal intercourse with eminent scientific men abroad than Dr Barry. During the two successive years he closely engaged in original researches. The results of these, entitled, "Researches in Embryology," appeared in two series, in the *Philosophical Transactions* for 1838 and 1839, and were rewarded by the Royal Society's medal. His habits of intense study, and almost continuous use of the microscope, not by day only at this time, materially injured his eye-sight, and threw him into a state of seriously impaired health, which continued for several years. On somewhat recovering from this illness, his peculiar sensitiveness of temperament was more apparent than before, and became to him a source of unavoidable inconvenience during the after part of his life. We are sure that, if some who once opposed his views on various subjects were only aware of the pain which they occasioned to this devoted and sensitive-minded man of science, their objections would have been stated with far less asperity. Notwithstanding frequent returns of ill health, Dr Barry eventually resumed the histological observations into which he had been originally invited by the embryological researches. His subsequent papers appeared as follows:—"Researches in Embryology, Third Series; a Contribution to the Physiology of Cells" (1840); "On the Corpuscles of the Blood" (1840); "Supplementary Note on the Formation of the Chorion" (1841); "On the Chorda Dorsalis" (1841.) "On the Corpuscles of the Blood," Parts II. and III. (1841.) (All the above papers were published in the *Philosophical Transactions.*) "On the Corpuscles of the Blood" (*Phil. Mag.*, 1841); "On Fibre" (*Phil. Trans.*, 1842); "Spermatozoa found *within* the Ovum" (*Phil. Trans.*, 1842-43); "Facts Relating to the Corpusles of Mammiferous Blood" (*Phil. Mag.*, 1843); "The Cells in the Ovum compared with the Corpuscles of the Blood—On the Difference in Size of the Blood Corpuscles in Different Animals" (*Phil. Mag.*, 1843); "On Fissiparous Generation" (*Edin. New Phil. Jour.*, 1843.) "On the Nucleus of the Animal and Vegetable Cell" (*Edin. New Phil. Jour.*, 1847.) "The last paper in this list" (says Dr Barry) "was written mainly for the purpose of bringing together, into the compass of a few pages, observations made by the author years before, and unfortunately so scattered through long memoirs, that they were to many physiologists unknown, and by others greatly misunderstood."

In the year 1843 he delivered a series of physiological lectures at St Thomas' Hospital, London. In reference to these, and to some of Dr Barry's writings, Professor Owen says—" I have equally profited by the well delivered, well arranged, and original lectures which Dr Barry delivered in 1843. . . . . To an extensive and masterly group of the rich results of physiological research, due to the labours of physiologists at home, and more especially over the continent, Dr Barry adds the rare power of wielding his vast resources in the direction of fresh conquests in science ; and I now desire to repeat, what I have expressed on a former occasion, my conviction, viz., that the most important anatomical and physiological discoveries that have been made in this country by the use of the microscope during the present century, are those which have been communicated by Dr Barry to the Royal Society, which have been published in the *Philosophical Transactions;* and have received the honourable mark of the estimation in which they are held by that learned body, by the award to the author of the Royal Medal."—(See testimonials in favour of Dr Barry, when Candidate for the chair of Institutes of Medicine in the University of Edinburgh.)

In the year 1844, Dr Barry became connected, as house surgeon, with the newly established Royal Maternity Hospital in Edinburgh. Here, as might be expected from his industry, zeal, kind-heartedness, and partiality for obstetric practice, he proved himself a most valuable officer. Professor Simpson, in noticing his services at this institution, speaks of him as " our invaluable house surgeon, and a gentlemen to whose talents, and zeal, and humanity, the hospital is deeply indebted for its prosperity." (See Simpson's Obstetric works (p. 454), edited by Drs Priestley and Storer.) Dr Matthews Duncan, who entertains an affectionate remembrance of Dr Barry as a man, and has the highest opinion of his abilities as an accoucheur, informs us that " at that time Dr Barry's name was like a sweet odour to the poor, distressed, parturient females in Edinburgh, specially in the Cowgate, High Street, and Canongate. They used to call him '*Barry Martin,*' indeed generally so ; and I am aware that his name is extensively remembered in these places. He reared up diligent students, which is not always the case, from the harassing nature of the midnight work of a midwifery pupil. During his residence in the Maternity, he made, with the greatest care, personally, with his own hand, observations as to the position of the child's head at the brim of the pelvis in the commencement of labour, and afterwards as to its position whilst passing through the pelvis. These observations were of the highest degree of reliability, and were undertaken to test Naegele's important views on these subjects. They corroborated them, and form, in my opinion, the best observations besides Naegele's, at least in this country. He also recorded some valuable cases—of resuscitation of a child, after opium poisoning, by the use of Kemp's battery ; on galvanism in exciting uterine contractions ; and on vaginal hæmorrhage from laceration. Most of the above mentioned observations are favourably noticed and acknowledged by Professor Simpson in various of his papers relating to these subjects."

There is abundant evidence that, as was the case with everything he studied, Dr Barry distinguished himself in midwifery practice, and we incline to believe that his short residence at the Maternity was not only greatly blessed to the poor, but was more fruitful in useful results to his students, and to science, than is generally admitted or known. When he left the Maternity Hospital, says Dr M. Duncan, " He paid me a compliment which I valued then and still remember with pleasure, in asking me to be his successor, a wish of his which I had the honour of fulfilling." Dr Barry resigned his office in the Maternity on account of another relapse into ill health, induced, as was then considered, by extreme devotion to the duties of his office, and those collateral scientific inquiries which his own active mind and daily avocations suggested. He retired to the island of Arran, a place he greatly enjoyed in consequence of its scenery, and the ample means it afforded in gratifying his taste for geological and botanical pursuits. Here he soon found that vaccination, as a preventive of small-pox, had been extensively neglected among old and young. Faithful to the promptings of his benevolent heart, and at a sacrifice of much time and personal convenience, he vaccinated most children on the island, and afterwards extended his philanthropic mission in the same way to islands adjoining, as well as to such parts of the nearest Highlands as he found not fully protected by Jenner's discovery. During his residence in Arran, and doubtless from its relation with his favourite study, he commenced the formation of an egg museum. This he afterwards extended, until he had at least one egg of *every British bird.*

Owing to continued ill health, he seems to have done but little in the way of writing or original investigation during the year 1846. In 1847, he published in the *Edinburgh New Philosophical Journal* a paper, previously read at the Wernerian Society, "On the Nucleus of the Animal and Vegetable Cell." Soon after this period, he again went to reside in Germany, and was there in the beginning of 1848, when the chair of the Institutes of Medicine, in the Edinburgh University, became vacant in consequence of its previous eminent occupant, Professor Allen Thomson, having succeeded to the Anatomical chair in the Glasgow University. At the instigation of several scientific acquaintances and personal friends, Dr Barry became a candidate, and produced testimonials of a very high order in proof of his fitness for the professorship. As is well known, Dr Bennett was elected to the chair, and has since continued to discharge its duties with a zeal and ability which have proved that the patrons made a most fortunate appointment. Dr Barry retired before the day of election, on the alleged ground of his entertaining religious scruples against subscribing to the tests then in force. On this subject we quote his own words, extracted from a letter of resignation addressed to the patrons, and dated Edinburgh, 10th July 1848; "Refraining from any remark on the application of the 'Tests' in question in the case of a chair of this kind, quite unconnected with Theology, I have now only to say, that my religious creed (as a member of the Society of Friends), although in harmony with all the essential doctrines of Christianity, is one that would not admit of my subscribing those 'Tests;' and that as the experience of my friends, who have since done me the kindness to wait upon you, accords with my own, that the 'Tests' are an insurmountable obstacle to my being elected, I beg leave, on these grounds alone, to withdraw my application for the appointment."

From 1849 to 1853, he again resided much on the continent, especially in Prague, Breslau, and Giessen; in all these places he was on intimate terms with men eminent in science and art. At this time, and ever after, he suffered greatly from a severe neuralgic affection, which, during certain cold and damp states of the atmosphere, involved almost every part of the body, but at other times was more especially confined to the head, neck, and arms. At the commencement of this continental sojourn, he renewed his investigations concerning muscular tissue, and, when at Breslau, had much intercourse with Purkinje on this and other points involved in his views regarding "*Fibre.*" These inquiries resulted in the production of his well known paper in *Müller's Archives* of 1850, and an extended translated abstract of the same in the *New Philosophical Journal* for August 1852. We find also, by a letter to an Edinburgh friend, written at Giessen on the last day of December 1851, that he was then engaged in studies of another kind, intending, as we understood, to turn them to account in micro-chemical investigations. He says, "I have rarely, if ever, had before me a subject so continually, and so intensely laying hold of all my thoughts, as that to which they have been directed for the last six weeks. . . . It is with *chemistry*, in the far-famed laboratory of Professor (now Baron) Liebig."

In 1852, he revisited Scotland, and resided occasionally in Arran, Rothesay, and Edinburgh. We saw him here for the last time in the summer of 1853. He was greatly emaciated, and suffered from neuralgic pain so continuously that he could not long maintain the same posture, and was often deprived of sleep for nights in succession. Notwithstanding all this, however, and although his mental and physical prostration were often very great in consequence of prolonged suffering, yet he entered freely into conversation and discussion regarding his favourite objects of study. Almost the only thing, indeed, which appeared to give him pleasure and animation, was to speak of his views in regard to the penetration of the spermatozoon within the zona pellucida having been confirmed by recent observers. He said he had been patiently "*biding his time*" in full certainty that such would be his eventual reward, and predicted that in this matter his formidable opponent Bischoff, would yet become his ally in belief. This, as we all know, has been the case. He also said, in alluding to a recent report of a committee of the Physiological Society (of Edinburgh), and in reply to our own objections urged against his ideas respecting muscular tissue, that he was as convinced of his correctness in reference to the double spiral structure of muscular fibre, as he ever was of the penetration of spermatozoa within the zona pellucida of the mammalian ovum.

He removed to Beccles in Suffolk, during the summer or autumn of 1853, and took up a residence near his brother-in-law, Dr Dashwood (who married Dr Barry's own and only sister), and remained here until his decease on the 27th of April last. Notwithstanding the continuance of his severe neuralgic affection, and otherwise gradually declining health, Dr Barry still devoted most of his available time to preparing a series of papers which were intended to prove that some of the views in regard to the *cell nucleus*, *fibre*, and *penetration of the zona pellucida by spermatozoa*, which he had propounded years ago, were receiving confirmation and countenance, as established doctrines in physiology. These papers were published in the "*Monthly Journal of Medicine*," as follows:—"Remarks on Quekett's Histology; on Kölliker's Human Histology, Vol. I.; and on the Physiological Importance of the Nucleus of the Cell," (June and July 1854). "Confirmation in two quarters of the Discovery by Keber of the Penetration of a Remarkable Body, believed by him to be a spermatozoon, into the Ovum of a Fresh Water Mussel." (January 1855). "Meissner shown to have been the first who confirmed the fact that the spermatozoon penetrates into the interior of the Ovum of the rabbit, the animal in which such penetration was first observed." (February 1855.) "Postscript to a paper in the January number of this journal, confirming the discovery by Keber of a Remarkable Body penetrating into the Ovum of the Fresh Water Mussel." (April 1855).

We find from a remark of his own appended to the last named paper, that so late as March (the month before his death), he was engaged in microscopical study. We further learn from a near relative that "the last few months of his life were employed in a review of his microscopic observations, and in forming, at the request of foreign physiologists, an abstract of them which he sent to Germany. It is remarkable that some portion of this paper occupied his last hours, and he appeared to have a satisfaction in having done with it, as one leaving the world." His perceptible decline seemed hastened by a circumstance explained in the following extract from a letter written on the 29th March, to a friend in Edinburgh,—"This is just a line from a sick-bed, in which I am imprisoned, the immediate cause being an ill-fitting boot. In my state of extreme prostration, the wound has refused to heal. A sinus formed which had to be laid open, and at one time I was by no means sure that the knife would not have to be followed by the saw." From another letter penned about a week before his decease, he appears to have rallied in some degree, and gives special directions concerning the transmission southward of his valuable collection of eggs. For some little time before his death he was exempted from suffering, and probably employed part of this period of relief in concluding the paper before referred to. He was fully aware of his approaching end, saying he had done with his "idols," and had attained "more than a willingness to cast them 'to the moles and to the bats.'" In the immediate prospect of death, he said, "All is peace;" on its being asked, "Even now?" he said, "Even now;" and soon afterwards quietly passed away full of a Christian's hope.

J. B.

In enumerating the more important of Dr Barry's writings, we avoided any critical or other observations thereon, because we are able to place before our readers the following remarks which have been kindly supplied to the Editor by Professor Allen Thomson, who from long-continued and trustworthy researche sin embryology, and complete acquaintance with the literature of this subject, is specially qualified for estimating Dr Barry's position as a physiologist :—

11*th May* 1855.

My Dear Sir,—Your letter has brought me the first intelligence of Dr Martin Barry's death. Along with all those who knew Dr Barry's amiable disposition, and had the pleasure of his friendship, I feel deeply grieved by his loss. No one who is acquainted with those departments of physiology to which he particularly devoted his attention, can doubt that in him the science has been deprived of one of its most ardent and valuable cultivators.

It would be difficult in a short space to present a just estimate of the value of Dr Barry's researches. It has appeared to me, indeed, that he himself did not appreciate rightly the relative importance of several of his views and observations. A natural and laudable ambition to be regarded as a discoverer, led Dr Barry to attach to some of his investigations, which he conceived were the most original, greater importance than will probably be accorded to them by the general consent of physiologists; while others of his observations will, from their minuteness and accuracy, probably retain their value, apart from the speculative views with which he connected them.

Physiology owes to Dr Barry two important discoveries; the first, that of the segmentation of the yolk in the mammiferous ovum; the second, the penetration of the spermatozoa within the zona pellucida or outer membrane of the mammiferous ovum.

As a student in Edinburgh, Dr Barry was known for his ability and research, and for the minuteness and accuracy of his observations and dissections. I am not aware of the exact period at which his attention was first directed to embryological pursuits; I think it must have been about or soon after the year 1835. Shortly after that period he showed his acquaintance with the subject by a translation of the first part of "Valentin's Manual of the History of Development," in the *Edinburgh Medical and Surgical Journal* for 1836, No. 127.

It was after this that he entered upon a comprehensive and well-conducted series of experiments and observations on the formation and earlier stages of development of the ovum in the rabbit, dog, and a variety of other vertebrate animals. The results of these researches were communicated to the Royal Society of London in three successive memoirs, which are distinguished for the extent and variety of the objects brought under investigation, the minuteness of the observations, the great beauty of the drawings representing them, and the generally correct views of the doctrines of embryology contained in them. It is not for me here to enter upon any analysis or criticism of these memoirs, or still less to discuss any of those parts of Dr Barry's researches, the accuracy of which has been called in question by other observers. It is enough for me at present to say, that, whatever difference of opinion might exist as to some points, all embryologists of note have long ago concurred in thinking that they contain a large amount of valuable original observation, and of materials for the elucidation of the subject of which they treat; and it is now also agreed by most that the two discoveries to which I have referred, and which are contained in these memoirs, belong to Dr Martin Barry.

In the description which Dr Barry gave of the segmentation of the yolk of the mammiferous ovum, obtained from the Fallopian tube (see second memoir, Phil. Trans. for 1839), it may be that his interpretation of the nature of this remarkable phenomenon is somewhat different from that which most physiologists, with the extended and improved observation since made of the corresponding phenomena in the ova of a great many other animals, may now be disposed to adopt; but we ought not, on this account, to deny to Dr Barry the merit which is unquestionably due to him, of having first extended to mammalia, the observation of a phenomenon which had previously been known only in the Batrachia, and of thus giving a remarkable impulse to the observation of the earliest changes of the yolk succeeding to fecundation.

With respect to the second discovery to which I have referred, it is well known that much doubt for a long time prevailed. In the third memoir, read to the Royal Society in May 1840, Dr Barry stated, that he had observed a small body like a spermatozoon passing into the ovum of the rabbit, through an aperture or cleft in the zona pellucida. But as this was in itself a novel observation, and had been made on an ovum taken from the Graafian follicle of the ovary, it did not obtain much credence. In October 1843, Dr Barry published a notice of an observation, which he had then made, of spermatozoa within the ovum of the rabbit taken from the Fallopian tube, and in process of segmentation. In this instance, although there was no aperture to be perceived in the zona, as in the former instance, Dr Barry conceived his first statement to be fully confirmed. It is familiar to most of the readers of physiological works, that even this last observation, though much more articulate than the first, was met with a very positive denial by Bischoff and others, who failed to confirm the fact of the penetration of the spermatozoa into the ovum; and that it was not till nine years afterwards, that the observations of Dr Nelson on the impregnation of the Ascaris mystax gave a new impulse to the study of this subject, and that Mr Newport was led to the discovery of the penetration of the spermatozoa into the ovum of the frog; and that still more recently the careful re-examination of the subject in mammalia, has resulted in the complete confirmation by Bischoff himself, Meissner, and others, of the fact of the entrance of spermatozoa into the mammiferous ovum, as stated by Dr Barry in 1840, and, more particularly described and figured by him in 1843.

Knowing the ardent desire which Dr Barry always cherished to rank among original physiological discoverers, we can readily conceive and sympathise with the lively satisfaction he must have felt at finding not only his single observation confirmed, but the fact which it attested in one important class of animals extended to a number of others, and thus made, in some measure, the foundation of a great general law. Nor can we be surprised that, to a mind so sensitive as Dr Barry's, the doubt, and almost obloquy, thrown over his observations by the disbelief in his statement as to this and some other points, should have been converted into exultation, in witnessing the discomfiture of those who, somewhat inconsiderately and intemperately, undervalued his researches.

The most valuable part of Dr Barry's embryological researches, besides the facts already adverted to, were those relating to the first formation of the ovum, and its earliest changes. He was not so fortunate by any means in his observations on the first formation of the embryo; but, indeed, he can scarcely be said to have entered fully into the investigation of this part of the subject. In so extensive a field of research, it might be expected that his views should have sometimes undergone a change in the progress of his investigations, and that he might also fall into errors to be corrected by subsequent observers.

Dr Barry's embryological researches very soon led him also into histological observations. Together with all those who followed the progress of anatomico-physiological discovery between the years 1835 and 1840, he was strongly impressed with the novelty and importance of the facts and views brought forward by Schleiden and Schwann on cytogenesis, and the relation of the process of cell formation and change to the origin and growth of the various textures of living bodies; and he already showed how fully he was aware of the value of these discoveries, in their application to embryological research, in an appendix to the third of his memoirs on that subject.

He also went much farther in this class of observations, and conceived that he had been fortunate enough to arrive at new and important conclusions with respect to the nature and functions of the cell nucleus, and the intimate structure of the muscular and other fibres of the animal body.

In the end of 1840, and in 1841, Dr Barry presented to the Royal Society three memoirs on the corpuscles of the blood, in which, besides a considerable amount of observations on these elementary structures, he brought forward new and speculative views as to their origin and relations to the other organised parts of the body.

He endeavoured to show that the blood corpuscles are derived from or are the descendants of the nucleus of the original germ-cell, and of its progeny of cells, that they are capable of multiplication by division of their nuclei in the endogenous manner, and that they, the blood corpuscles, are the source of all the organised textural elements and formed textures of the animal body.

In the end of the same year (3d December 1841), Dr Barry presented to the Royal Society another histological memoir, entitled, "On Fibre," but which, as he himself states, was intended rather as a continuation of those on the corpuscles of the blood, than as the history of a distinct series of investigations; and it was in this memoir that he first brought forward as the result of his microscopic observations, those views as to the spiral structure of the muscular fibre, the blood corpuscle, and, indeed, all the textural elements of organised bodies, which engaged the greatest share of his attention during the latter years of his life, and on which he seemed more disposed to rest his character as a scientific observer and discoverer than on any other part of his labours.

The whole of Dr Barry's memoirs may be said to be pervaded by a tendency to speculation, and by a fixed determination to bring all his observations under a novel and philosophical system of doctrine; this tendency seems to have become stronger in the course of his researches, and to have shown itself more and more apparently as his attention became more absorbed in the observation of the organic cell and its nucleus. Attracted by the apparent universality of the laws of cellular growth which had been advanced by Schleiden and Schwann, he had already conceived that he had made the important discovery that the first rudiment of the body of the embryo proceeds directly from the linear extension of the nucleus of *one* of the cells descended from his "germ-cell," a view totally unsupported by, and at variance with, all other observations on the same subject. And there can be little doubt that, as he proceeded with his histological researches, the speculative view gained far too great a predominance over the inductive or matter of fact character of the results to be deduced from his observations.

After a continued, close application to these microscopic researches, from 1837 to 1843, Dr Barry fell into bad health, and his sight was so much injured, that he was obliged, even after the partial recovery of his general health, for several years altogether to abstain from the use of the microscope. It may reasonably be supposed that, with a mind so active as Dr Barry's, and so intent upon founding a new histological system, the circumstance must have had considerable effect in giving preponderance in his latest papers to the speculative element.

While Dr Barry adopted in a great measure the views of Schleiden and Schwann as to the cellular origin of the textures, he conceived that he had made an important addition to, and correction of, their views, in calling attention to the activity of the nucleus of the cell as a productive agent. Adopting a term suggested by Professor Owen, he denominated the substance of the nucleus "hyaline," and he came to the belief that in every species of growth or production, it is by descent from, or by division of, a portion of this hyaline-nucleus that the new parts first take their origin; and that in this manner every part of an animal is directly descended from the hyaline-nucleus of the germ-cell. He also conceived that he had demonstrated that each nucleus possesses a minute orifice, corresponding apparently to the nucleolus, which he regarded as the absorbent aperture through which the materials necessary for the further changes in the nucleus are introduced. A collected account of these views was read to the Wernerian Natural History Society of Edinburgh, and published in Jameson's *New Phil. Journal* for 1847.

The histological views adopted by Dr Barry in the three memoirs to which I have last referred, viz., in his papers on the "Blood Corpuscles," "On Fibre," and on the "Nucleus of the Animal and Vegetable Cell," did not meet with that assent from the opinion, nor support from the observations of other physiologists which he had fondly anticipated; and they were even somewhat roughly handled by some writers on histology. The confidence of their author in their truth did not appear from this, however, to have been in any degree diminished, and, accordingly, after a partial recovery of his health and his eyesight, we find him interesting Professor Purkinje of Breslau in his views, to such an extent as to induce him to repeat with him a number of his observations on the spiral structure of muscle, and some other textures, and to translate into German a long paper of Dr Barry's on that subject, which was published in Müller's *Archiv. of Physiology* for 1850.

An English version of the same paper, somewhat abridged, together with newer observations of his own, and deductions from those of others, was also published by Dr Barry in the *Philosophical Magazine* for August 1852.

Shortly after that time, I received several visits from Dr Barry, during which we made together, some microscopic examinations of specimens of muscular fibrillæ, I had in my possession. Knowing well Dr Barry's desire to obtain assent to his views, I took pains, both in conversation and in writing to him afterwards, to assure Dr Barry that I was not a convert to his views of the spiral structure of muscular fibre; but I found that his anxiety to obtain support, led him to attach weight to every expression, however indirect, which seemed to indicate assent, while much stronger expressions of dissent were disregarded. The result of these and other examinations by Dr Barry, were recorded in a second paper on muscular fibre, published by him in the *Philosophical Magazine* for November 1853.

It would take a much more detailed consideration of the whole series of observations recorded in Dr Barry's papers, than I could enter upon here, to enable me to give any criticism of these researches, or to explain the circumstances in which I think he may be in the right or have fallen into error. Now that he is no more, and his works alone remain, it will be more pleasing to endeavour to extract that which is good and true from them, rather than to discuss fully their errors, and this will be, I hope, the result of continued inquiry. In the meantime, if it may be permitted, in these circumstances, to make only one remark on the general character of Dr Barry's histological researches, I would say that, while they present us with most commendable examples of literary research, scientific acumen, and patient, minute, and persevering observation; they also show the injurious effect which the predominance of too speculative a view in the mind of an observer, may exercise on the observation and description of the appearances which form the subject of his investigation.

I esteemed Dr Barry as a friend, and valued him as a most ardent and persevering inquirer. Whatever may be thought of his individual observations, it cannot be doubted that his researches as a whole, gave a decided impulse to the progress of knowledge in the departments of which they treat, partly by the actual contribution of some new and valuable facts and observations, and partly by the ingenuity of his speculative views, the vigour with which they were supported, and the discussions to which they necessarily gave rise. And while we must regret the loss of one so well qualified to engage in scientific research, we may justly place Dr Barry in the rank to which his ambition aspired, that, viz., of a meritorious and successful scientific inquirer; for, assuredly, the reputation of all those should be held in grateful remembrance, who, besides having themselves added several important facts to the subjects of their investigation, have also, by the influence of their example, the extent of their labours, and the ingenuity and vigour of their writings, promoted the advancement of the science of organisation. I must beg you to excuse the appearance of haste in these observations, which in the midst of many other engagements, I have, at your request, thrown together.—I am, &c.,

A. T.

ON THE HORIZONTAL CURVATURE OF THE INTERNAL FEMORAL CONDYLE: ON THE MOVEMENTS AND RELATIONS OF THE PATELLA; SEMILUNAR CARTILAGES; AND SYNOVIAL PADS OF THE HUMAN KNEE-JOINT. By JOHN GOODSIR, F.R.SS. L. and E., Professor of Anatomy.

(*A Lecture delivered in the University of Edinburgh.*)

THE lecturer, assuming the ordinary descriptions of the human knee-joint, and the more precise observations of the Brothers Weber (*Mechanik der Menschlichen Gehwerkzeuge*, 1836), as presenting the present state of information on the subject; proceeded to explain the arrangement and use of the peculiar curvature at the fore part of the inner condyle of the femur, as recently determined by Professor Meyer of Zurich (*Die Mechanik des Kniegelenks, Müller's Archives*, 1853); and the movements and relations of the patella, semilunar cartilages, and synovial pads of the articulation, as observed by himself.

Before entering on the peculiarities of the inner condyle, Mr G. reminded his audience that the knee-joint consists of two articulations, with a common synovial membrane, the patello-femoral, and the femoro-tibial, the latter being double. The articular surface of the femur is consequently divided into a trochlea for the former, and two condyles for the latter; the condyles being separated from one another by the intercondyloid fossa, and from the trochlea by two shallow oblique grooves.

Mr G. now observed, that anatomists had not hitherto noticed that the so-called obliquity of the inner condyle of the femur is in fact, as Meyer has pointed out, a curvature of its anterior third, with its concavity directed backwards, outwards, and downwards. The two posterior thirds of the inner condyle pass backwards parallel to, and have the same general form and extent as the entire outer condyle of the bone. The curved portion, or anterior third of the usually so-called inner condyle, may therefore be conceived as a part intercalated between the patellar trochlea and the proper inner condyle.

According to Meyer, the mechanical advantages, which result from the peculiar antero-posterior curvatures of the femoral condyles, which the Brothers Weber concluded, from their admeasurements, to be spirals, may be with greater simplicity assumed to consist, as his own admeasurements suggest, each of two circular segments, the posterior of 120°, the anterior of 40°, the radius of the former being to that of the latter as 5 to 9. The horizontal curvature at the forepart of the inner condyle, or, more precisely, the oblique curvature may, as Meyer states, be conceived as a segment of 60° of the margin of the base of a cone, the axis of which is directed at an angle of 45° downwards, outwards, and backwards, in front of the spine of the tibia, so that its apex is situated in the external condyle of that bone.

In flexion and extension, therefore, of the knee-joint, as long as these movements are confined to the outer condyle, and the two posterior thirds of the inner condyle of the femur with the condyles of the tibia, they take place round two transverse axes, which pass respectively through the centres of the posterior antero-posterior circular curvatures of the femoral condyles, and the centres of the anterior. To simplify the conception, however, of this part of the arrangement, Meyer assumes as sufficiently accurate, a single transverse axis.

In the first third of flexion, and in the latter third of extension, the movements of the femur and tibia take place round the oblique curvature or anterior third of the internal femoral condyle; and involve, in addition to the completion and commencement of flexion and extension respectively, a movement of rotation of the tibia, and, consequently, of the leg and foot inwards in the former, and outwards in the latter. These remarkable movements of rotation inwards and outwards, inseparable from the commencement of flexion and the completion of extension, take place round the axis of the ideal cone already alluded to. This axis Meyer denominates the oblique axis of the knee-joint.

These movements of rotation, combined with flexion and extension, must be carefully distinguished from those of which the joint is capable when considerably flexed. The latter, with which anatomists are already familiar, take place, in general terms, round a prolongation of the axis of the tibia. This axis Meyer denominates the rotation axis of the knee-joint.

Mr G. next referred shortly to the action of the ligaments in the movements round the oblique axis of the joint. Of these, the most remarkable is that of the external crucial, which ligament becomes tightened in extension, as the movement round the oblique curvature of the inner condyle proceeds, and thus acts, from its obliquity, in a direction from below, upwards, backwards, and outwards, so as to guide the rotation of the tibia outwards.

The discovery of the oblique axis of the knee-joint has enabled Meyer to determine with greater precision the action of certain muscles of the thigh. The use of the peculiar mode of insertion, hitherto unexplained, of the sartorius, gracilis, and semitendinosus, becomes evident. Their tendons passing down behind the inner side of the knee, curve forwards and outwards on the tibia ; so that these muscles effect that rotation inwards, which is a necessary accompaniment of the commencement of flexion. These muscles produce this rotation directly ; that is, by an adaptation of their tendons to the purpose; but, according to Meyer, the proper flexors of the knee, the biceps and semimembranosus, only act indirectly as rotators, through the medium of the articular surfaces and ligaments. Mr G., however, conceives that the latter may act directly in producing rotation inwards at the commencement of flexion, for its tendon, instead of being inserted, as is usually stated, into the back part of the inner tibial condyle, passes forwards and outwards round the head of the bone in a distinct grove, in which it moves, being kept in its place by prolongations of the internal lateral ligaments of the joint; and thus presenting the same general mode of insertion as the three muscles already alluded to.

The rotation outwards, at the completion of extension, is produced indirectly by the quadriceps-extensor; the form of the articular surfaces, and, according to Mr G., the tightening of the external crucial ligament, co-operating with the group of extensor muscles.

Meyer has detected a very beautiful adaptation of parts in connection with this latter movement, and has thus explained the characteristic enlargement, and the extensive attachment to the patella, of the vastus internus muscle. When the knee is extended, the ligamentum patellæ, instead of being perpendicular, will be found to pass downwards and outwards to its tibial attachment, which has moved outwards in the rotation of the leg. The lower portion of the vastus internus is enlarged, and the upper portion of its tendon is attached to the greater part of the inner edge of the patella, for the purpose of preventing that bone from being pressed against the outer part of the femoral trochlea during the rotation outwards of the leg, by drawing it inwards and upwards, and keeping its axis in the line of the ligamentum patellæ; while the lower portion of its tendon passes down to be attached somewhat obliquely to the inner side of the head of the tibia, and thus assists directly in rotating the leg outwards.

Meyer has also shown that, in standing quietly upright on one or both limbs, the knees are not necessarily kept straight by continued action of the extensor muscles, for the ligaments of the patellæ may be slack. The continued extension cannot be the effect of the superincumbent pressure of the body, for the transverse plane, in which the common centre of gravity is situated, lies behind the transverse axes of the knee-joints. Two arrangements conduce to this remarkable example of economy in muscular action. When the foot is on the ground, and the knee extended, the inward rotation of the leg in the commencement of flexion cannot take place; and if the pelvis and trunk are kept erect, the reverse rotation of the thigh-bone outwards is prevented by the tightened condition of the ileo-femoral band of the hip-joint: but if the trunk and pelvis be inclined forwards, although the ileo-femoral band is relaxed, and the femur relieved, the tendency to flexion of the knee-joint is removed by the passage of the line of gravity to the front of the transverse axis of the articulation. The thick longitudinal band of the fascia lata on the outer side of the thigh, extending from the anterior superior spinous process of the ileum, and from the inferior attachment of the tensor vagina femoris, to the fore part of the outer condyle of the tibia (ligamentum ileo-tibiale), is another arrangement for economising muscular exertion; for as long as the pelvis is kept erect on the heads of the thigh-bones by the gluti maximi muscles, it is evident that these ileo-tibial bands must tend to keep the knees extended, and transfer the action of the quadriceps-extensor to the great muscle of the hip.

The patella exhibits various interesting relations during the movements of the joint; and in addition to those observed by Meyer, Mr G. pointed out others hitherto unrecorded. Meyer states, that the under half of the patella is in contact with the femoral trochlea in extension, and the upper half in flexion; but if the bone is carefully examined, the following configuration and relation of its articular surface will be detected. Instead of two faces, a greater external, and a lesser internal, separated by a perpendicular ridge, as usually described, the surface presents, in every instance, six, frequently seven; facets, separated from one another by two perpendicular and two transverse ridges. The external perpendicular ridge is the one commonly described. The internal cuts off a small elongated perpendicular facet at the inner edge of the surface. The two transverse ridges only extend inwards to the inner perpendicular ridge, so as to separate from above, downwards, two superior, two middle, and one or two inferior facets, the external of two latter being constant. The relations of the articular surface of the patella present four groups. In complete flexion, the internal or perpendicular facet is in contact with a remarkable crescentic facet, which bounds the oblique curvature of the inner condyle of the femur. In none of the other positions of the joint is this internal patellar facet in contact with an opposite cartilaginous surface; but is covered or sheathed by what Mr G. denominates the internal patellar pad. At the same time, the external superior facet lies upon the fore part of the external condyle of the femur below and behind its bounding groove. These two facets are the only parts of the patella which come in contact with the proper femoral condyles. They do so only in complete flexion; and in this state all the remaining facets are in contact with the great infra-patellar pad, and the so-called mucous ligament.

In the second stage of extension, the superior internal and external facets are in contact with the inferior portions, respectively of the inner and outer halves of the femoral trochlea; the internal perpendicular facet being sheathed as before stated; and the remaining facets being in contact with the great infra-patellar pad.

In the third stage of extension, the superior internal and external facets leave the femoral trochlea and become sheathed, and the space occupied partly by the supra-patellar, but principally by the supra-trochlear pads. The middle internal and external patellar facets now come in contact with the middle portions respectively of the inner and outer halves of the femoral trochlea; while the internal perpendicular and the two inferior facets are sheathed and padded as before.

In the fourth or last stage of extension, the middle internal and external facets also recede from the surface of the trochlea, and along with the internal longitudinal already sheathed, become applied against the fore part of the femur above its articular surface, the intervening space being stuffed by the supra-patellar, supra-trochlear, and upper pads, in the ascending cul de sac of the synovial membrane. In this last stage, the only portions of the patella in contact with the cartilaginous surface of the femur, are the inferior internal and external facets, or the latter, if one only exists. These slip somewhat abruptly upwards and inwards upon a narrow ledge or furrow, which terminates the femoral trochlea above, and forms a resting-place for the inferior facets of the patella in the complete extension of the joint.

Mr G. now proceeded to direct attention to the fact, that the patella, in complete flexion, lies so much to the outer side of the joint, as to leave the inner condyle, with the exception of the crescentic facet, exposed in front. Meyer has pointed out, that the external position assumed by the patella in complete flexion depends on the external patellar retinaculum, which consists of two oblique bands, extending from the outer edge of the bone to the anterior margin of the ileo-tibial band of the fascia lata already alluded to; and which, as it slips backward during flexion, drags the patella by means of the external retinaculum outwards.

In complete extension, again, the patella lies at the inner side of the upper end of the joint, with its long axis directed outwards and downwards. It assumes this position under the action of the lower portion of the vastus internus, which may now be considered as an adductor patellæ. It will be observed also, that the passage forwards of the lower end of the ileo-tibial band, and the consequent slackening of the external retinaculum, permits the bone to take up this internal position. In consequence, therefore, of the movements of the patella, in harmony with the oblique rotations of the knee-joint, the bone, under the influence of its external retinaculum, and of the lower part of the vastus internus, describes a carved path, the concavity of which is directed upwards and outwards. It is also guided in this path by the form and direction of the femoral trochlea, and particularly by its upper and outer portion, which, as is well known, projects considerably upwards, forwards, and inwards, so as to convey the patella to the inner side.

Mr G. next proceeded to state, that the spaces, which would otherwise be produced by the recession of certain parts of the cartilaginous surfaces from one another in the movements of some joints, are occupied by moveable and yielding structures of two kinds—interarticular fibro-cartilages, and the so-called Haversian glands, which he proposed to denominate synovial pads. The former occur when resistance to pressure is to be provided, the latter when space is only to be occupied. The semilunar fibro-cartilages of the knee belong to the former category; and the Brothers Weber have pointed out generally how these elastic crescentic masses move backwards and forwards in the flexion and extension of the joint. But Meyer has indicated with greater precision their peculiar functions. The external semilunar cartilage must be viewed as an appendage to the external condyle of the femur, with which it moves backwards in flexion, forwards in extension. These movements are facilitated by its circular form, the approximation of its horns, its non-attachment to the anterior external lateral ligament, although the posterior external lateral ligament gives off a peculiar arrangement to support its posterior limb. The internal semilunar fibro-cartilage, again, must be regarded as an appendage to the internal condyle of the tibia, to which it is fixed by the two internal lateral ligaments. It resembles a curved, yielding, but elastic railway on the upper surface of the inner condyle of the tibia, along which the corresponding condyle of the femur rolls backwards and forwards.

Mr G. then stated that he applied the term of synovial pad to the mass of vascular fat covered by the synovial membrane, and usually called a Haversian gland, or synovial vascular fringe. He had, some years ago, directed attention to the structure and relations of these bodies, as corroborating the opinion of Havers regarding their function (*Anat. and Pathological Observations*, p. 42). He had now ascertained that, in addition to their probable function in supplying synovia, they act undoubtedly as moveable stuffing pads, which not only smear the synovia over the opposite cartilaginous surfaces, but steady the movements of the joints, by passing into the spaces left between the surfaces during action. These bodies are so constant in their form and relations as to indicate the general character of the movements the joint is capable of.

The principal structure of this kind in the knee-joint is the great infra-patellar pad—the mass in connection with the so-called alar and mucous ligaments. It presents a posterior free surface of a quadrilateral form, which is applied against the cartilaginous surface of the femur, principally in the extended condition of the joint; a superior free margin cut into two lobes, which fill up the variable angular space between the femur and patella, being forced upwards from below by the so-called flabelliform ligaments of the patella; an inferior free margin, also divided into two lobes, separated from one another by the attachment of the mucous ligament, and which, in the nearly extended state of the joint, is pulled back into the angular space between the condyles of the femur and the tibial aspect of the articulation by the traction of the mucous ligament; and, in the flexed condition, is forced backwards by the pressure of the atmosphere.

The supra-patellar pad is adapted to a deep and characteristic notch, which exists between the upper end of the patella and the tendon of the quadriceps extensor. This would appear to adapt the tendon to the bone in the varied antero-posterior angular positions of the two parts during action.

The lateral patellar pad is the pouch-like fold which sheathes the internal longitudinal facet of the patella.

The great and the supra-trochlear pads are situated, the former at the upper and outer part of the great cul de sac of the synovial membrane, the latter, a larger external and smaller internal, towards the upper part of the outer face of the trochlea. These fill up the space between the patella and the fore part of the femur above the trochlea in complete extension.

Mr G. concluded by adverting shortly to the remarkable facetted configuration of the articular cartilages of the knee-joint, a structure which had hitherto escaped notice. In a previous part of the lecture, he had described the facets of the patella; which bone he now stated exhibited, from the variable projections of these facets, sometimes a concavity, sometimes a convexity, and occasionally a flat profile.

He then demonstrated on the surface of the tibial condyles, the following facets, a semilunar facet on each condyle, corresponding to the under surfaces of the semilunar fibro-cartilages, and separated by faint, but distinct blunt ridges from a central femoral facet on each condyle, the latter in contact with the femoral cartilage.

On the femur, in addition to the trochlea separated from the condyles proper by the oblique grooves, and presenting, particularly in aged and slightly diseased examples, traces of the three successive stages in the position of the patella, there are on the condyles semilunar and tibial facets separated by faint ridges, and in contact with the upper surfaces of the semilunar cartilages, and uncovered portions, or femoral facets of the tibiæ. On the inner condyle of the femur, and bounding the oblique curvature, is the important crescentic facet already described.

[In our next Number will be published Professor Goodsir's Lectures "On the Electrical Apparatus in Torpedo, Gymnotus, Malapterurus, and Raia."]

VARIETIES.

Ozone and Cholera.—M. Wolf, director of the observatory at Berne, having procured the daily list of the deaths from cholera at Aarau in Switzerland, from the 15th of August to the 14th of October 1854, has classified the days in which no death occurred, those in which one or two took place, and lastly, those where the mortality amounted to three and upwards. "I have ascertained," says he, "that the corresponding average of the reactions of ozone, at Berne, stands—

"For the days of the 1st class, as 6.48.
" " 2d ., 5.48.
" " 3d ,, 4.58.

"I draw the conclusion," continues M. Wolf, "that in effect the spread of cholera is, to say the least, extremely favoured by the diminution of ozone."—*Gazette Hebdomadaire.*

Milk an Article of Food, not a mere Beverage.—This has been determined legally the other day by the Court of Cassation in Paris, and its decision is in accordance with sound physiological principles. After this, the person who adulterates milk, no longer commits a simple contravention of the acts of police, with a penalty of 15 francs fine, and imprisonment of from 24 hours to 8 days; he now may be found guilty of a misdemeanour, and punished with a fine of 50 francs, and imprisonment of from three months to a year.—*Gazette des Hôpitaux.*

The Destructive Effects of Ergot of Rye upon the Fœtus.—It would appear that the attention of the French authorities has been called to a considerable increase in the number of still-born children, and that the Chief Commissioner of Police of Paris has laid the following question before the Academy of Medicine:—Does ergot of rye, administered to a parturient woman, endanger the life of the child? This question is certainly worthy of attention, and the profession should be in possession of some data on the subject.

Prevention of Abdominal Typhus by Vaccination.—M. De Gressot has communicated to the Academy of Medicine some remarks upon the probable consequences of the connection established by some medical men between small-pox and typhus fever. He asks if, admitting this connection to exist, it is not desirable to attempt the prevention of the eruption on the intestinal mucous membrane by vaccination, performed upon some accessible point of its surface, in the same manner as the cutaneous eruption is combated by vaccination practised on the skin.—*Gazette Med.*

Suggestions for a New Psychological Terminology. — The phrases "madness," "madhouse," "lunatic," "lunatic asylum," "keepers," "cell," should be at once and for ever expunged from our vocabulary. The term "madness," is unquestionably an unscientific one. The word "lunatic," is obviously founded upon an acknowledged error. The appellation "keeper," only suggests to the imagination wild beasts, iron cages, and certain officials who perambulate the Zoological Gardens, and should never escape the lips of humane and scientific men. , ... A man in a state of insanity, is not likely to be soothed by being informed that he is going to a madhouse; and we would humbly suggest, when there, that the irritation, which is necessarily increased by his sudden removal from home, and being placed amongst strangers, is not likely to be much mitigated by telling him that he is to be consigned to a cell, or that he has a keeper to watch his every movement, to sleep in the same room with him, and, if necessary, to control his actions.—Ed. *Psychological Journal.*

⁂ We regret being compelled, from want of space, to delay the publication of our "Case-Book," as also the proceedings of the Edinburgh Obstetrical Society, etc., etc. Books Received and Exchange List in our next.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Observations on Croup:—Symptomatography.* By CHARLES WILSON, M.D., Fellow of the Royal College of Physicians, Edinburgh.

THE first symptom which can be remarked as certainly denoting the advent of croup, is the peculiar character of the cough. It is difficult to convey any exact notion of the quality of a sound, or rather of a class of sounds, which indeed vary from each other through a wide diversity of pitch, tone, intensity, and volume, and yet preserve a sufficient amount of resemblance to mark their common nature and identity. At the commencement, the cough may usually be described as short, frequent, dry, rough, and hoarse. The more perfectly the characters of abruptness, dryness and hoarseness are associated, the greater is the probability of the development of the disease in an intense form: the least approach to humidity gives promise of a milder description of attack. A little later, there is more shrillness of sound, with a kind of harsh, metallic clangour, which has caused it to be designated as brassy, or trumpet-like; but which it has sometimes occurred to me to remark as more nearly resembling a note in a discordant and ill-pitched open-diapason stop of the organ: or it may be somewhat clearer than this, and almost of a ringing quality of tone. It will now commonly occur in violent paroxysms; evincing its suffocative tendency by its being attended by loud, crowing inspirations, in the midst of the shrill intensity of which a kind of double sound, or broken dissonance, is ordinarily observable. Sometimes, the pitch of the cough is somewhat lower and rounder, and it may be then better described as a kind of barking. In other instances, and these generally of the most severe description, or towards the fatal termination, the cough is less sharp, and without volume, and the hoarseness is whispering. When the tones become more unisonous, and of natural pitch, and when with this there is an accession of humidity, the breathing being easier, or, in other words, when the cough begins to acquire the characters of that of ordinary catarrh, we may welcome the first note of safety for the patient; although the sounds may still now and then revert briefly to an approach to the croupy character.

In the voice, we observe something like the same succession of changes which have been distinguished in the cough; though it his occurred to me to remark, that a reduction of the volume of the sound, even down to aphonia, is here of less serious import. Thus I have observed, on the second day of the full development of the disease, complete aphonia; yet the voice, on the following day, had already again become audible; and, on the sixth day, along with the general advance towards recovery, it had resumed its natural qualities. In the severer cases, it may be described as intensely shrill and broken, dissonantly metallic, or whispering and feeble, or shrill without volume. The term "hoarse" ought perhaps to be forbearingly employed, because, strictly considered, hoarseness is rarely the correct designation for the sound of either voice or cough in croup; at least, during the period up to the full development of the disorder. Proper hoarseness, as it occurs in the simpler forms of acute laryngitis, or under other conditions of the glottis, may be described as presenting uniformly a reduction in the volume of the voice, and not rarely in its pitch also; so that the sound is not only less powerful, but its tone also is lower. But, in the early stages of croup, the volume of the sound ordinarily is little altered, and the pitch is exalted; so that the voice is nearly as loud as usual, while its tone is higher. There is, moreover, a distinction between the qualities of the tones; which, in proper hoarseness, are broken and dull, and in croup are sharp and clanging, yet with a certain huskiness intermixed. The best imitation of the more characteristic sounds of croup which I have been able to devise, may be given by the attempt to articulate in high or falsetto tones during the act of inspiration; in which it seems probable, judging from the effect, that the manner in which the air is made to impinge forcibly above the orifice, together with the action of the muscles resisting the closure of the glottis, throws the parts into a state of tension, which raises the pitch of the voice, while the resulting modification of form alters the quality of its tones, so as to imitate the effects of the disease, though arriving at them by a different mechanism. In the advanced stage of croup, we have noted that both voice and cough occasionally subside into a rough whisper: in the extreme stage, where the termination is otherwise than sudden, this is nearly uniformly the condition of both. Usually the broken sounds suggest the idea that the vocal chords are disproportionately affected by the disease, so as to vary in their states of elasticity and tension, and to vibrate unequally, or in dissonance. When the peculiarity of the voice, especially in its greater efforts, or in its higher tones, remains for some time as a sequela of the disease, we may assign as its cause a state of chronic irritation, with probably slight sub-mucous infiltration or congestion, of the upper portion of the larynx.

The condition of the respiration in croup, as it constitutes the leading danger of the disorder, necessarily attracts the more earnest consideration. Authors have erred in describing the breathing as uniformly hurried. Sometimes, even when the disease is fully established, the respiration is slow, or moderate; sometimes, however, it is remarkably rapid; rarely it preserves its ordinary relations with the quickness of the pulse. Where the dyspnœa was intense, and the inspirations loudly sibilant, prolonged, laboured, and gasping, I have counted them only twenty-four per minute. In another fatal case, with orthopnœa, and both acts of respiration sonorous, and exceedingly difficult, the inspirations were twenty-eight per minute, within less than twenty-four hours from the time of death. In a third, where the child had suffered from two paroxysms of extraordinary severity, the inspirations per minute were forty; while in a fourth, in whom the disease became complicated with pneumonia, and was also fatal, they rose to ninety per minute, accompanied with little sound. The ages of these patients were respectively 4½ years, 3 years, 21 months, and 19 months. It is well to keep in view here, that the normal number of respirations has been estimated at 47 per minute during the first year of life, 33 in the third, and 30 in the fourth.[1] Usually, at first, the inspirations only are sonorous; but, as the disease advances, the act of expiration also presents ordinarily the anormal sounds, and it is frequently materially lengthened in duration. As these sounds vary in their degrees of permanence, they pass also through wide ranges of relative quality and intensity. While the inspirations are sibilant, stridulous, piping, or crowing, the expirations may also be sibilant, or prolonged sibilant, but with a graver tone than that of the inspirations, or they may be without sound. Sometimes I have observed the inspiration suspirant, while the expiration was sibilant; sometimes both acts were merely suspirant. In a case where a membranous exudation was discovered on dissection, part of which, measuring about an inch in length, and a quarter of an inch in breadth, had been ejected during life, I noted that both acts of respiration were sonorous, and that there existed a distinct pause at the close of the inspiration, after which the expiration succeeded with a kind of effort: a modification of the act which I consider it of importance to observe, as denoting, with some certainty, the presence of a portion of partially detached false membrane.

It is easy to comprehend why it should be not unusual in croup, especially in cases which have been somewhat protracted, to observe the respiration become less laboured, or, at least, less sonorous, in whatever degree it may continue frequent, and that the cough should be more humid, and less broken and peculiar, as the attack approaches its fatal close. At this time, the lungs themselves are usually participating largely in the effects of the morbid actions: there may be congestion, and not rarely hepatization; or the larger bronchi may be obstructed, and the air-cells charged with fluid matters; or there may be pulmonary œdema; or we may have those results which are now attributed to capillary bronchitis, and now to lobular pneumonia. As a consequence of this, it follows that a considerable volume of air can no longer be admitted by the lungs; that there is, therefore, no longer a necessity for either its forcible entrance or expulsion through the glottis; and that the diminished capacity of that aperture thus suffices for the smaller supply demanded by the equally diminished capacity and weakened action of the general respiratory apparatus. On the other hand, as we have an accessary cause of death in the accumulation of unaerated blood in the brain, there may ensue, through the torpor of the nervous system occasioned by this description of hyperæmia, a cessation of the spasm of the glottis, previously incessantly incited; and thus the constriction may be really diminished in a limited degree, by its more material causes being left singly in operation. It is in the more acute case, running its course with great rapidity, and terminating suddenly, that the powerful and sonorous inspirations are continued to the close.

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[1] Zehetmayer, *Lehrbuch der Percussion and Auscultation*, (3te Aufl. 1854), p. 8.

A consideration of the physical signs is neither required, nor presents any weighty advantage, for the early diagnosis of croup: during the acme, however, and towards the termination, it may be sometimes specially directed, so as to elucidate important practical questions, where the distress, the restlessness, and the irritability of the patient do not preclude its deliberate employment. The loud, blowing sound, heard on auscultation of the larynx or trachea, in their normal states, may be substituted by the piping, or stridulous, or *quasi*-metallic sounds of croup; but the latter, where present in such intensity as to afford a determinate indication, are usually distinctly audible without the necessity for the intervention of the stethoscope. When the disease is established, it may be sometimes possible to distinguish a kind of tremulous murmur, as if some partially detached membrane, already exuded, oscillated with the current of air; or, where the floating margin is more considerable, the breath-sound of expiration may be suddenly interrupted, as if by the closing of a valve; and the precise point at which either of these phenomena occurs may be determined with accuracy. But even here, the value of this means of special diagnosis, though now and then essentially important, is necessarily limited in its practical applications; because the proof of the presence of a loosened portion of false membrane, in a particular locality, can afford in itself no indication of the extent to which the exudation has proceeded elsewhere, in parts where it is still adherent. In the height of the disease, it may be sometimes of a more real advantage to observe the degree of sinking of the supra-clavicular and intercostal spaces, but especially of the former, during the violent efforts at inspiration; because we have here a sure token that, in the proportion that this is manifest, the affection of the breathing must be held to depend still mainly on the obstruction of the larynx, while the lungs themselves may be judged to remain comparatively free from disorder, and to retain, in a large degree, their capacity for contraction and expansion. The signification of this special sign, in relation to prognosis, or to operative interference, does not appear always to be sufficiently regarded; and yet, if we bring it into consideration, balancing it against the contradistinctive signs of extensive dulness on percussion, or widely diffused mucous râles, according as these may exist in greater or smaller degrees of intensity, we can have, on these heads, no more valuable indication than that to which it may conduct us. It is, of course, ominous of an approaching fatal termination, when the latter signs present themselves conjunctly in any prominent degree: but the easily accessible, and, in itself, less momentous sign of dulness on percussion may be occasionally already appreciated, while the mucous râles are still only in the initiative, and may be as yet completely masked by the predominant diffusion of the sharp or rough sibilation, here the pathognomonic breath-sound of the larynx; or in cases where the uneasy, and often injurious, strugglings of the patient render nugatory any more delicate investigation through the stethoscope. Such examinations must be resorted to as gently and forbearingly as possible; for there is not a movement to which the timid child must thus be necessarily subjected which may not provoke a paroxysm, and there can be no repetition of paroxysms which does not aggravate the present or the ultimate danger.

The morbid sounds in the larynx, it need scarcely be stated, will be found to intermit with the changing degrees of the difficulty of breathing, and with the accession or subsidence of the suffocative paroxysms; or, towards the close especially, the chest and laryngeal sounds may be remarked to predominate alternately. In one case, that of a girl of three years of age, already evidently hopeless, the mucous râles were perceived loudly and extensively throughout the chest, at a period nearly two days prior to death; while, a day later, the laryngeal breathing was still remarked as sonorous with both acts of the respiration. In this instance, there was evidently a kind of valvular obstruction to be overcome before the act of expiration could ensue; and, on dissection, the trachea was found lined with a soft layer of false membrane, easily separable from its walls, while the lungs appeared much congested, and the bronchial tubes were loaded with mucus. The sinking of the supra-clavicular spaces, then, and the absence of dulness on percussion, on the one hand, with the presence of dulness on percussion, or of extensively diffused mucous râles, on the other, seem to be the leading points of interest among the physical signs in croup; but even these are of trivial consequence, unless viewed in conjunction with the other conditions of the patient, or with the general symptoms. Where there is neither dulness nor diffuse râle, it is of relatively little importance to note the generally weakened respiratory murmur, because this may be taken for granted as the unavoidable result of the obstruction of the larynx, now permitting only a scanty ingress of air into the lung; while, beyond this, the prevailing propagation throughout the chest of the loud laryngeal tones attendant upon the obstruction, would of itself render fruitless any attempt at appreciation of a different class of sounds, comparatively so suppressed.

Apart from the consideration of the sounds of the cough, the voice, and the breathing, the condition of the fauces constitutes the fourth of what may be designated the quaternary group of symptoms mainly pathognomonic of croup. The essential character of this condition lies less in the actual presence of a fibrinous exudation on the pharynx or tonsils, than in a certain inflammatory action existing in these parts, which experience proves to be capable of giving origin to this description of exudation; and in which it really occurs with sufficient frequency to establish the positive nature of the tendency in the locality itself, while, from analogy of structure and contiguity of site, we are entitled, *a priori*, to infer the probability of its simultaneous or independent occurrence in the parts adjacent, and more especially involved in the disorder of croup, where also experience has rendered evident the capacity for its development. Hence the importance of noting carefully this condition of the fauces, the neglect of which has been mainly instrumental in diffusing inexact ideas of the real entity of croup; and has led to many examples being regarded as of a purely spasmodic nature, in which the remarkable aberrations in the nervous function were not the less founded upon a more tangible and material basis. But if, by one set of observers, the inflamed condition of the fauces in croup have been admitted only as rare,[1] or have been habitually disregarded on the one hand, the actual relations have been, by an opposite error, too uniformly misrepresented on the other, by those who, judging of the disease chiefly as it has appeared in certain epidemic forms, or in a particular range of localities, have argued without due reserve from the individual to the general, and have asserted that as true unconditionally and everywhere, which is true only conditionally and in part. Not a few of the French pathologists, guided by Bretonneau, seem to reject the idea of any other form of croup, properly so termed, than that of an exudative angina, the false membranes of which, begun on the mouth, form always on the epiglottis, and on the edges of the aperture of the larynx.[2]

However much, and with jaws however closely clenched, an inspection of the fauces may be resisted by the child, through terror or indocility, its accomplishment is attended with no difficulty. By gliding the stem of a teaspoon along the tongue or palate, towards the pharynx, an act of retching is excited; when the mouth widely extended, and gullet drawn upwards, expose the parts fully to that momentary view, which is sufficient for the observer to ascertain completely the condition of the parts. Should a second glance be requisite, it is easily obtained by a repetition of the same simple manipulation; employed with that peculiarly gentle yet subjugating firmness which is not always easily assumed, but which is necessary to foster the submission without fear which alone secures the genuine ascendancy of the physician in the nursery, who must not look upon such matters as trifles, if he would avoid the wreck of his cure. Thus examined, in as far as I may appeal to my own experience, though the red and tumid tonsils, as they have been described in a previous paper, were uniformly observed, the presence of any exudation on their surface may almost be said to have constituted the exception rather than the rule. It was only in 1 case in 9, or in 11 per cent. of the whole, that even slight traces of exudation were observable; and in a single case alone, which terminated, however, in recovery, was the exudation considerable. The fainter traces of exudation usually disappear in the course of two or three days, but they occasionally recur. They are chiefly discernible on one or both tonsils, and sometimes on the back part of the pharynx. In one instance, the exudation was seen as a white line along the anterior arch of the palate. In another, the membranous patch was situated so deeply in the pharynx, that it could only be rendered visible by inducing efforts to retch. In a boy, seventeen months old, the uvula was found enlarged to twice its natural size, and covered with a white exudation, which appeared also on both tonsils. He was hoarse, had croupy cough, but the breathing was never loudly stridulous. After eight days' treatment, he gradually recovered. Distinctly defined tumefaction of the sub-maxillary glands was not common, or at least constituted no constant or prominent symptom. Along with the condition of moderate, and I believe specific, phlogosis, which I have described as having been encountered so uniformly associated with true croup, the fauces are occasionally observed to be loaded with a greater or less abundance of transparent, tenacious, phlegm. Sometimes the slight degree of swelling appears to extend into the gullet; and I have remarked a tumid circle of vivid redness on the pharynx, as far down as it became visible during the act of retching.

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[1] Cheyne, *Pathology of Membrane of Larynx and Bronchi*, p. 17. Albers, *Commentatio de Tracheitide Infantum*, p. 9.

[2] Bouchut, *Traité pratique des Maladies des Nouveaux-nés et des Enfans à la mamelle*, (2me edit.) p. 305.

Sometimes a remarkable general proneness to fibrinous exudation elsewhere, even in remote situations, and dependent upon some apparent dyscrasis of the blood, is seen to accompany what may then be termed the croupy diathesis. In another of my cases, a girl of fifteen months of age, an excoriation from intertrigo in the left groin became covered with an ash-coloured membrane, which began to detach itself in a few days, but the surface beneath which presented a feeble tendency to heal for several weeks afterwards. Bretonneau[1] gives the cases of a girl five years of age, and of an infant of a few months, in whom slight excoriations behind the ears became covered with a membranous layer; the symptoms of croup supervening briskly, and proving fatal. What is worthy of note in such instances, as in cases to be again alluded to under the head of treatment, where the exudation has appeared on blistered surfaces, is its tendency to spread itself beyond the portion primarily affected, so as to involve the surrounding skin. Thus, in the example just cited from my own observation, the exudation extended itself obviously much beyond the original site of the intertrigo, and was accompanied by considerable tumefaction of the parts which became secondarily implicated. Dr Levy, of Copenhagen, mentions that he has repeatedly witnessed such a general diphtheritic inflammatory constitution in children. One example he cites especially, which he had observed in a patient under the care of Fr. Jäger, of Vienna, where a perfect diphtheritic membrane was detached from the eye of an infant, who, on the same day, perished from croup.[1] Dr Lehmann has also remarked the frequent coincidence of diphtheritic conjunctivitis with croup.[2] In an official report on the sanitary condition of Norway, for the year 1848,[3] it is mentioned on the other hand, that numerous cases of diphtheritic exudation on the fauces had occurred within the province of Christiania; and that, contemporaneously with the tendency to this affection, it was frequently observed that membranes of similar aspect presented themselves on the surface of suppurating sores, wherever situated, in other individuals, as if affording evidence of the existence of a certain form of epidemic influence prevailing generally. A child, for example, had membranous exudation on a burned surface on the face, the mother and sister having diphtheritic angina. In the public hospital, a like excretion was several times remarked on the surface of wounds after operations. Illustrations of a similar description have been narrated by Trousseau;[4] although, like certain of the other examples, the instances in so far differ from what has presented itself to my own observation, from their having occurred, not with merely sporadic croup, but under an eminently epidemic form of diphtherite. The absence of fetor, with the integrity and sensibility of the parts immediately subjacent, usually distinguishes at once these membranous exudations from gangrenous sloughs, to which, on a hasty glance, they bear some resemblance.

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[1] *De la Diphthérite*, p. 35.

We should deceive ourselves, then, into a rash and false security, were we to follow those who would induce us to dispute the existence of croup, in cases where there are no traces of exudation on the pharynx; and who assert that, in the absence of these, we have to deal only, at the most, with a spurious and easily tractable form of the disorder. Wherever we have ascertained the presence of a degree of swelling, usually very limited, of the fauces or tonsils, characterised in the latter by a kind of granular, or even slightly mammillated aspect, and by a pallid redness, we have ascertained enough, if the other symptoms be in accordance, to deprive us of all plea of justification, should we permit ourselves to dally for an instant with a danger which is already broadly manifest. It has been seen in how small a proportion of instances diphtheritic exudation has presented itself among the cases which I have recorded: and yet, the disease of croup, as it has occurred to my observation, in its confirmed state, and with the complete association of the group of symptoms which have been just described as required to coincide to its full development, has proved, as I have always considered myself justified in believing, an almost infallibly fatal disorder, wherever it has not been subjected to early and decided means of treatment; as it is ever a highly perilous one, even where these have been the most prompt, the most judicious, and the most energetic. In rural practice, and in remoter districts, it is not rarely heard of that children have been seized with croup, where medical aid has either not been resorted to at all, or has been requested too late; and of these cases it is scarcely too much to state, that I have all but uniformly learned that they have terminated in death. Thus in the earlier months of 1843, I had information of not less than four fatal cases, occurring in three different hamlets lying near the outskirts of the range of the Cheviots, for not one of which had medical assistance been procured. The Swedish physicians describe croup as leading generally to a certain death, if not early subjected to efficient treatment. On the shores of Lake Wener it may be regarded as endemic; and it is remarked by Dr Segerstedt, that it is only with rare exceptions, and those for the most part of slighter degrees of intensity, that life is preserved where the disease is left to its own course.[1] In the annual report, for 1853, of the Royal Board of Health for Denmark, it is noted, as a proof how sparingly medical assistance is in request with the commonalty, and which we may here accept, for our own immediate purpose, as a proof also of the naturally fatal tendency of the malady, that, while 23 individuals are recorded as having died of croup in Mariager, a town of North Jutland, and its vicinity, only one had been visited by Dr Siemsen, the sole resident practitioner. In the northern division of Seeland, of 30 purely sporadic cases, 23 proved fatal.[2] In Norway also, where croup is ordinarily more or less prevalent, it is found that it has for the most part shown itself without the complication of diphtheritic angina, and yet has currently constituted a leading cause of mortality among children. In secluded districts of that country, where it is only the exception that timely medical aid can be procured, it is reported that scarcely one of those afflicted is rescued from the disorder.[3]

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[1] *Bibliothek for Læger*, April 1854, p. 459.

[2] *Bib. for Læger*, Ap. 1854, p. 456.

[3] *Norsk Magazin for Lægevidenskaben*, B. iv., H. 11, p. 724.

[4] *De la diphthérite cutanée: Archives Générales de Médecine*, T. xxiii. (1830), pp. 386, 388, 395.

As it is the association of the aggregate of these qualities and states of the fauces, the voice, the cough, and the respiration, in croup, which constitutes nosologically the perfect type of the disorder, so there is not one of these which may not present itself apart, or in only partial conjunction with the others, so as to require a very different appreciation of the degree of danger it involves. Thus, an altered voice may depend upon a mere relaxation of the ligaments of the glottis, or it may arise from a modification or interruption of the innervation of the parts, and it may be unattended with cough; or the peculiar cough itself, and the stridulous breathing may be superadded, and may both be alike directly the result of the disturbed function of the glottis, and yet this may still remain no farther affected than through a modification in the transmission of the nervous influence; or the swelling and redness may be apparent, yet the mucous membrane, and submucous tissues, of the parts above the glottis may be the sole seat of the specific phlogosis, and the disease be so limited as to fail to implicate the rima glottidis and vocal apparatus, and thus be neither attended by alteration of voice, nor cough, nor obstructed respiration; or the peculiarity of cough may be joined to the inflamed condition of the fauces, while the breathing remains unaffected, and the danger, in a certain obvious sense neither unreal nor insignificant, may still lie more in the risk of an impending aggravation of the disorder, than in the symptoms which are thus actually present. As to the existence and the ejection of the membranous exudation itself, although the assumption of its uniform presence has been generally adopted as a ground for affixing the ordinary designation of the disorder, it is in reality so rarely observed during life as to constitute an indication of comparatively little practical value. Either the fibrine is not thrown out in a form sufficiently concrete to adhere as a membrane, and is ejected as a curdy, pultaceous-like, sputum: or it is swallowed instantly by the little patient, as soon as detached, in whatever form it may have been produced, and before its exspuition can be secured, and then there only remains the remote contingency of its being recognised among the matters which may be expelled by vomiting. Among the minority of instances in which I have been enabled to remark the exspuition of the false membrane, the earliest occasion, occurring in a girl of two years of age, has been a little more than twenty-four hours after the full development of the disorder; when the portion ejected had already nearly a line in thickness, and measured upwards of an inch in length. A day and a half afterwards the disease proved fatal. In another case, a boy eight years old, the false membrane was not coughed up till after about four days' subsistence of croupy symptoms, and three days afterwards the patient died. The portion was of an irregular shape, about an inch and a half long, and three quarters of an inch broad; and had three red bands on its surface, as if from sanguineous exudation, at such distances as corresponded with the intervals of the rings of the trachea. In a third instance, the false membrane, which was first observed on the fourth day of the fully developed disorder, measured about an inch in length and a quarter of an inch in breadth, had a striated appearance, and a moderately dense texture. The patient, a girl of three years of age, died thirty hours afterwards. When the membranous exudation appears with the sputa, it can, indeed, rarely be regarded as a cheerful omen. It but denotes the most exquisite form and the full intensity of the disorder, carried to the period of complete evolution: and if the ejection be occasionally attended with a temporary, and now and then with a well-marked alleviation, we can derive from it no security for the future; because the membrane may be easily and rapidly reproduced; or the other morbid conditions of accumulations in the bronchi, capillary bronchitis, or pulmonary œdema, which associate themselves with the latter stage, and conduce to the fatal termination, may continue to subsist and to be extended.

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[1] Huss, *Om Sverges endemiska Sjukdomar:* Stockholm, 1852, pp. 37, 39.

[2] *Det kongelige Sundhedskollegiums Aarsberetning:* Copenhagen, 1854, pp. 23, 25.

[3] *Norsk Magazin for Lægevidenskaben*, 1850, p. 725.

We can glean nowhere more ample and interesting illustrations of sporadic croup, than from among the observations of the physicians of the Danish and Scandinavian peninsulas, to whom I have already made a few references; although we have once more a proof of the necessity for a careful revision, and more accurate harmonising, of the doctrines of the disease, in the affirmation of the late eminent Professor Hwasser, that croup may be distinguished from diphtheritis, as an affection from which it is essentially different, and with which it is even rarely complicated, through the absence, in the former, of every sign of inflammation in the gullet, or in other parts visible by inspection of the mouth; a dogma which we cannot doubt has proved to be, at least, far too absolutely asserted.[1] At a meeting of the Medical Society of Stockholm, Dr Tholander exhibited a membrane coughed up in croup, entire and continuous, stretching to the first bifurcation of the bronchi, and measuring three inches in length.[2] The girl survived till the sixth day afterwards. We derive from Dr Trafvenfeldt the, in as far as I know, unique fact, which it is proper, and may be important, to notice, that extensive exudation may exist within the larynx and trachea, and even approach close to the glottis, and yet that the usually considered pathognomonic sign of the croupy tone may be absent. In a boy six years of age, whose disease terminated fatally on the thirteenth day, the windpipe, from the rima glottidis, was found to contain a pseudo-membrane, in parts of a line in thickness, and of considerable tenacity. Nevertheless, the presence of the croupy sounds had been wanting during life to substantiate the diagnosis.[3] Possibly it is an example of an analogous description, which is cited as a wholly exceptional case by M. Valleix,[4] on the authority of M. Hache, and in which cough was altogether absent; but I have not had an opportunity of verifying the reference.

Some allusion has already been made to the peculiar character of the pyrexia in croup, which, we have seen, though it is rarely wholly absent, even from the commencement, may be yet often little manifested at first by any prominent degree of langour or oppression. The child, with perhaps occasional fits of peevish restlessness, continues for some time lively and playful; though a closer attention may usually detect, during these intervals of ease, a degree of quickness of pulse, and heat of skin, such as seems scarcely consistent with the prevailing exemption from general depression. In a boy nine years of age, the pulse on the first evening of the confirmed disorder was only 72; in a girl, ten years old, it was 84; in another, three years old, it was 88, on the second evening. These, however, were comparatively rare exceptions, and it is more usually noted as ranging from 100 to 110, or 120. In this class of cases the appetite is at first ordinary, and the thirst inconsiderable. But in another class of cases the digestive functions are implicated from the commencement; and there is thirst, with loaded tongue, defective appetite, and fetid, dark-coloured, alvine discharges. In such cases, the feverish restlessness or the oppression is considerable throughout; and the patient, however complete may be the remissions between the proper suffocative paroxysms, remains permanently listless or irritable. It is, of course, more by these general characters, than by any criterion to be derived from the pulse, in point of mere frequency, that we are to estimate the degree of gravity of the pyrexia; as the natural rapidity, and marked excitability, of the heart's action, in tender childhood, render any exclusive indications to be drawn from it, on this score, at once of little value and of hard appreciation. No one will fail, in estimating it, to keep in view that, during the first year, the pulse may range normally from 115 to 130; and up to the seventh year, from 85 to 90. In other respects, it appears to me, that it is in early infancy that the disease may be chiefly viewed as presenting itself in its most determinate and unmixed character. The patient, who is advancing beyond the verge of childhood, is more conscious of his situation, and therefore more prone to alarm and nervous agitation, under the influence of which the paroxysm alters its features, and increases its apparent violence, without really increasing the danger, while indicating less precisely its extent. But the fears of the infant are merely instinctive, and the expression which it gives to its sufferings is a truer index of their degree of intensity, and of the actual violence of the disease. Fortunately for our discrimination of croup at this tender age, there is no disorder where the symptoms present more of an objective character, and where we are less called upon to depend upon the explanations of the sufferer, in order to appreciate their exact quality. To the more essential features of the pyrexia which we have noted, it may be briefly added, that sometimes in croup the urine is in ordinary quantity: at other times it is scanty and high-coloured, or deposits a copious white sediment, doubtless from varying proportions of urophæine and urate of ammonia. Moisture of skin gives no decided augury: when confined to the head briefly, it is an unfavourable symptom. Sometimes, instead of the face being flushed, or presenting a livid turgor, there is an appearance of collapse. In a few instances I have observed slight epistaxis.

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[1] *Förhandlingar vid Svenska Läkare-Sällskapets Sammankomster* (1849), p. 51.
[2] *Hygiea, Med. och Pharm. Maanads-skrift*, B. XIV. (1852), p. 634.
[3] *Hygiea*, B. XIV., p. 633.
[4] *Guide du Médecin Praticien* (3me Edit.), T. I., p. 167.

But, in considering the accession and the course of the pyrexia, as well as of the other general symptoms in croup, we repeat, that there is nothing more deserving of attention, because we know that there is nothing which has more frequently misled, than the insidious manner of their advance into maturity. A fine and vigorous boy, six years of age, whose case occurred prior to the period of the range of observations on which these remarks are chiefly founded, was seen by me incidentally in the country. His voice was then distinctly hoarse; but so little was his general health or feeling of buoyancy affected, that the exuberance of his mirth was so excessive as to require repression. On the afternoon of the following day he was seized with a croupy paroxysm; and was attended as soon as possible by a surgeon in the vicinity, by whom very active measures of treatment were employed: but such was the violence of the attack, that he survived only a few hours, and was already dead before my assistance could be procured from a distance of fourteen miles from his place of residence. In another instance, also in the earlier part of my experience, a boy, aged eighteen months, had been ill for two days of symptoms which his mother described so as to convince me, if they were described correctly, of their croupy character: yet I continued in daily attendance for four days longer, without being able, though fully upon my guard, unless that in this single instance I made no examination of the fauces, to recognise any decided symptoms of croup evincing themselves actually before me; the child being uniformly quiet, breathing easily, without wheezing, and without chancing to cough while my visit lasted, so that there seemed really some reason to question the accuracy of the mother's description of what had occurred in the intervals. On the seventh day, however, the disease revealed itself with sufficient distinctness, and I found him with pyrexia, hoarseness, croupy cough, and sonorous respiration. In three days more the illness terminated fatally.

Examples of the marked character of the remissions, where the disease had been once recognized, may be adduced with equal ease and abundance. Thus, a peculiarly interesting boy, three years old, after prodromi of the usual character, though of shorter than usual duration, had a croupy paroxysm at midnight. At nine, on the following morning, he was asleep, and breathing calmly and naturally. He continued to improve during the day, appeared lively, had an easy night, and on the morning next succeeding, his voice was described as nearly natural, with no sibilation of breathing, and the pyrexia slight. He had once more a quiet night; but, on the night ensuing, or after a three days' interval of nearly entire calm, he became again restless, with oppressed breathing and cough, not frequent, but with a sound which had again deteriorated. The voice seemed rather reduced in volume than altered in tone. On the following night the tone of voice was shrill, and the cough peculiarly clear, with difficult, sonorous breathing, and occasional accessions of suffocation, during which it became necessary to raise him from the recumbent position; and, in the course of another day, the disease reached its fatal termination. In this case, the vivid redness of the fauces, with slight tumefaction, but without exudation, was distinctly marked. Another boy, four and a half years old, was ill with distinct and severe croupy symptoms for two days prior to commencement of treatment. On the sixth day of the treatment, the cough, which had improved from the beginning, had a sound already approximating to that of ordinary catarrh, and the respiration was also greatly relieved; yet the voice was little more than a whisper. On the ninth he spoke with a distinct utterance. But on the twelfth the cough became again more croupy, and the respiration sonorous; and on the fifteenth he died, at a period of seventeen days from the accession of the first marked paroxysm.

We have thus sufficient to warn us, that wherever there is peculiar cough and alteration of voice in children, there is danger. However easy for the time the respiration, however cheerful the mood, and however hale the appetite, inconsistent as all these seem with the idea of the presence of a dangerous form of inflammatory disease, still, if the symptoms we have denoted be co-existent, there is real danger; and the parent, or the physician, who does not immediately awake to alarm, will too frequently have ample reason to regret his indifference. The latter will be twice culpable, if, on now examining the throat, and finding the tonsils red and tumid, he do not instantly subject his patient not only to the strictest surveillance, but to the most active and unflinching medical treatment, till the peril be obviated. It is on our early success that depends our safety, and it is fortunate that early success is usually of comparatively easy achievement; while, if once an adventitious membrane be permitted to form, recovery will be thrown entirely upon the merest and most distant contingency, which we can do little to promote, and nothing to render certain. In like manner, after a paroxysm of the disease has once evinced itself, no cessation of the indications which is not complete, consistent, and enduring, ought to disarm our vigilance. So long as certain of the symptoms are not entirely removed, or recur at short intervals, to whatever extent less distinctly marked than in the greater paroxysms, we may have still a return of the whole. Of these, the sonorous breathing is the most important. Next in influence is the peculiar cough, and least of all the altered voice: both of these, and especially the latter, sometimes persisting, as has been remarked, for days and even weeks, with impunity; though it is by far the more usual course, in cases of recovery, that first the one should become bronchitic, and the other natural, in quick succession. To appreciate exactly the condition of the voice, I have been accustomed, as a little practical rule, and in patients of intelligence sufficiently mature to respond to my intentions, to try to elicit the enunciation of the long sound of the vowel

O; the roundness and openness of which seem to adapt it for the detection of minute shades of variation in the quality of the tones. The gratification of hearing it pronounced, with its due integrity of utterance, is a hearty one to the practitioner who has been engaged in anxiously scrutinizing each transition in the progress of the distressing malady.

I have thus detailed the leading features of a general form of disease, which I have often had occasion to witness, and never otherwise than with intense interest. Had I been less anxious to have described, in its ordinary sequence, and with its obvious characters, what I have myself really observed, than what I might have gathered elsewhere, it might have been attempted to have moulded more arbitrarily the details at once into a series of nosological entities, to be stamped as definite species of the disorder; certainly with a greater parade of rigorous science than I have adventured, but I fear with less truth to nature. Still, assuming that the simple outlines just given have been founded, in as far as they have been carried, upon an induction already something beyond a mere enumeration, there yet remains, as a fit and important subject of inquiry, to ascertain in how far, by a more specially directed process of elimination and exclusion, it is possible to establish a proper, or specific, diagnosis of certain varieties of the disease of croup: and to reconcile it to the facts as they are to be really seen, co-existent and associated, and not as they may be selected and arranged, and, least of all, as they may be imagined. The medical thinker does not require to be warned, that the co-incident, however it may surprise us by the frequency of its appearance, may still remain something widely apart from the essential; just as the consecutive, recur as it may, does not constitute necessarily the causal relation. Superstition seeks its proofs in co-incidences, and finds them in abundance; and the more startling the more acceptable: reason discovers them in a demonstrable train of connective action, by which one fact, or group of facts, may be referred to another, either directly, or through a primary causation common to both.

Undoubtedly, in the special diagnosis of croup, there is danger in being too minute. It can be no advantage that the representation of the disease should appear frittered away into a maze of abstractions, and words be formalized, with a show of severe accuracy, till the ideas which they are designed to exhibit seem to fade behind them, and elude the intellect. The mind is thus foiled everywhere with the conventional, where it desires the real, or with the accessary, where it seeks the essential; and the reader gathers little, at last, beyond a painful sense of the redundant and misplaced ingenuity of the writer, who has apparently preferred to draw us into his study, rather than conduct us to the sickroom. The fragments of a mosaic, ranked merely according to their sizes or predominant colours, may give us the idea of much patience and accuracy in their arrangement; but they present to us no picture. Scarcely otherwise, the symptoms of a disorder, parted hither and thither, in its special diagnosis, by one who seeks, as an eclectic, to reconcile, not to nature, but to each other, the statements of authors, or to fashion for himself a series of nosological formulas, ever disjoining where nature is ever mingling, will fail often to bring before us the notion of any vivid reality.

As to the differential diagnosis of the disorder, and the nature of its complications, there can be no question, if there be any as to the other, of the value and interest which attach to their consideration.

EDINBURGH, 13th July 1855.

ARTICLE II.—*On the Os Sacrum considered as forming part of the Vault of the Pelvis, and on its Function in the Development of the Lateral Expansion of that Cavity.* By J. MATTHEWS DUNCAN, M.D., Lecturer on Midwifery, Edinburgh, etc.

IN introducing my views on this subject to the notice of the profession, I find it necessary to point out the imperfect or erroneous character of the notions which are at present generally entertained. This invidious task is recommended by the consideration that such preliminary discussions will not only tend to dispel error, but will add to the facility of obtaining a clear and accurate idea of the views to be afterwards propounded and defended.

It is surely, now-a-days, a work of supererogation to say one word in answer to those who would wish to set aside all attempts to introduce into the philosophy of the human frame the trite laws of mechanical action. Our knowledge of physiology, as it now makes daily progress, ever tends to reduce within narrower and still narrower limits, the phenomena or functions which are peculiarly designated "vital," a term which is equally useful to screen our ignorance, to excuse our want of zeal and ability in probing nature's secrets; or to indicate our arrival at ultimate laws, beyond which even the dreams of philosophers, cannot anticipate the possibility of reaching.

1. *The Sacrum as a Wedge.*

When this bone is looked at in front or behind, its wedge shape is at once evident to every observer. From its base, which has a breadth of 4½ inches, the bone tapers rapidly to its apex or coccygeal extremity. The length of the bone is about 4½ inches, and the anterior borders of its lateral surfaces, which give it the wedge-shape, when produced, approach one another at an acute angle, and almost meet at the apex. When more carefully examined, the bone is found to present a wedge-shape in other points of view than that just mentioned as first apparent. The antero-posterior thickness of the base is about 2½ inches, while that of the apex is only near 2 lines. The bone is therefore wedge-shaped from the convergence of its anterior and posterior surfaces, as is well seen in the common drawings of an antero-posterior section of the pelvis in a vertical plain. In another and third point of view, the sacrum presents a wedge-shape. We have already ascribed to the convergence of the anterior borders of its lateral surfaces, its most evident likeness to a wedge. But these lateral surfaces converge in another direction, namely, upwards and backwards, the bone being broader in front than behind.[1] Besides these three evidently just comparisons of the shape of the sacrum to a wedge, there is a fourth which a little attention will at once enable any one to apprehend. Unlike the others, it is not constant; and, further, it is carefully to be remembered that in the present question it is not of any importance, unless it be in the direction of the forces influencing the pelvis, or rather of the great vertical force, the weight of the body. This wedge-shape is found in a section of the bone in a direction, oblique as regards its length, and passing from upwards and forwards on the posterior surface of the bone, in a direction downwards and backwards, to emerge on the anterior surface, at the site of the lateral notches opposite the second sacral vertebra.

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[1] I am satisfied with the general statement made in the text, as it agrees with the ordinary anatomical descriptions of the bone, and tallies with my own observations. But I shall here quote Mr Wood's account of this subject, premising that the variations from the general statement in the text are either irrelevant to the questions to be discussed, from the measurements not being in lines passing vertically through the sacrum in the erect position of the body, which are the lines of action of the great force, the weight of the body; or else the variations are so trivial in measured extent, as not to produce any very important mechanical action further than what, in machinery, is called a "bite," and even this very imperfectly, from the elastic and yielding properties of the bones and cartilages forming the joints of the pelvis.

"The posterior surface is rough for muscular attachments, and directed upwards and backwards. It is narrower than the opposing parts of the anterior at the upper part of the bone generally, by rather more than half-an-inch. According to Mr Ward, a transverse section of the sacrum, an inch below the base (at the second sacral vertebra), shows that in this place the posterior surface is wider than the anterior by three-sixteenths of an inch, so that the sacral wedge is here reversed in obliquity, which he considers of importance in resisting anterior dislocation of the sacrum. Above this point, the anterior surface is three-sixteenths of an inch wider, and below it resumes its superiority in width by four-sixteenths. In some cases, the back and front are of equal width; in others, the anterior diameter exceeds the posterior throughout.—*Cycl. of Anat. and Phys., Suppl.*, p. 118.

Mr Ward expressly says, that the sacrum "is larger above than below, and is also (with certain exceptions which will presently be stated) wider before than behind."—*Human Osteology*, p. 255. The exceptions alluded to are noted above in the extract from Mr Wood's paper. It is important to remember that these exceptions refer to sections of the pelvis made in the plane of the brim, not in a vertical direction.

Hitherto I have described the bone as wedge-shaped in various points of view, each of which includes the whole bone or thickness of the bone. But in most, though not in all, sacra, there is an interesting wedge-shaping of the posterior or upper part of the auricular surfaces (see *ab*, figs. 1 and 2). This portion I select for special notice, on account of its importance in several respects, some of which will afterwards appear. The auricular surface is, in most pelves, grooved or furrowed in its whole length. This furrowing of the auricular surfaces, which are parts of the lateral surfaces, and which converge backwards and upwards, is deep enough to give the posterior or upper halves of these surfaces a different direction from that of the auricular surfaces as a whole (see figs. 1 and 2, *ac*). They are found to converge forwards and downwards (as is easily seen in the figures), and are shaped like a wedge so directed.

Having thus shown how the sacrum resembles a wedge in shape, as far as several distinct arrangements of its surfaces are concerned, it remains to be demonstrated that it does not act in any important respect as a wedge. The unfortunate mental association of the sacrum with this mechanical power, should be entirely laid aside, as it can only mislead, if it is not clearly understood that the analogy to a wedge is only in the circumstance of shape, not in its relations as a mechanical element in the construction of the pelvis. This erroneous association has sprung from a most fertile source of error, namely, ignorance of the true inclination of the pelvis in the erect posture, or from anatomists regarding the skeleton of the pelvis as it usually rests on a table, tripod-like, on the coccyx and two ischial tuberosities. When the pelvis, in the living body, is in this position, as in slovenly sitting, then, indeed, the sacrum may act mechanically as a wedge; but its relations in that state to the weight of the body, to shocks, and muscular efforts, is comparatively so trivial and unimportant, that we shall not dwell on it here further than to point out how, in this position, the posterior vertical sacro-iliac ligament will come into service in preventing displacement downwards. This ligament is a superficial bundle of the posterior sacro-iliac ligament, whose fibres run in a different direction from those of the great mass of the ligament.

It is in the erect position that the pelvis is subjected to all the mechanical influences which are of paramount importance, in regard to it as a whole, or in regard to its separate parts. The sacrum, as a mechanical element, in this part, must always be studied and considered as in the position it occupies when the body is erect.

Before proceeding further, it will be useful to say that, all the posterior or inferior half of the bone may be left out of consideration. It is only the two superior and part of third sacral bones that are in contact with the ilia, and can have any thing to do with the transmission of the weight of the body, or of any important mechanical influences to these bones or the rest of the pelvis.

The only parts of the sacrum which can be supposed to convey any wedge-like action to the ilia, are, of course, these, where contact exists; and it is to these that the study of the wedge-like action of the sacrum must be confined. They are the auricular surfaces, which, on the side of the ilia, as well as of the sacrum, are covered by cartilage, and have a more or less perfect intervening potential synovial cavity. Of these auricular surfaces, on either side of the sacrum, the most distant parts (or base of the supposed wedge), are the angles looking forwards and downwards corresponding to the broadest part of the whole sacrum, namely, the lower or anterior border of the superior surface or base. As the other parts of these surfaces recede from these points they approach each other. These auricular surfaces, as a whole, or, in other words, the sacrum as a whole, can act as a wedge, only if the power applied, acts in a direction from the broadest part or inferior border of the base. But the weight of the body is a vertical force directed from above and nearly in an opposite direction, and cannot, therefore, have any influence on the sacrum regarded as a wedge. It is, indeed, almost impossible to conceive any force acting in a direction looking towards the broadest part of the sacral wedge. The best of all illustrations of the action of the weight of the body in a direction nearly exactly the reverse of that required to act upon the sacrum as a wedge, is found in cases of softening of the bones of the pelvis, where the weight of the body always depresses the sacral promontory more or less in a vertical direction.

The weight of the body is transmitted through the sacrum to the strongest parts of the ilia, or iliac beams, which convey it to the heads of the femurs. If, then, we regard the auricular surfaces of the sacrum as seen in vertical sections (See fig. 1,[1] *ac*, p. 116), that is in the direction of the force applied to it, we shall discover the shape presented by the sacrum in relation to that force. Such sections pass from the anterior inferior border of the auricular surface vertically upwards, and in accordance with the description already given of the lateral surfaces of the sacrum, such sections will, as a whole, be wedge-shaped, the base of the wedge looking downwards. This is invariably the case if we regard the auricular surface in totality, but in accordance with the description already given, small parts may occasionally be wedge-shaped in the reverse direction.

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[1] This section is as nearly in a vertical direction through the sacrum in the erect position of the body, as could be easily attained to. The section is through the second sacral vertebra, nearly in the line of gravity of the body. The late researches of Meyer have corrected and completed those of Weber, in indicating the position of the centre of gravity as above the second sacral vertebra. The centre of gravity may be admitted to be somewhere in an antero-posterior vertical plain. Borelli and the Webers pointed out the horizontal plane in which it lay. The section of these two planes gives the antero-posterior line in which the centre lies. Meyer has completed the investigation by indicating the point in that line where it is.

This section does not pass through the length of the iliac beams, as in fig. 2; for the iliac beams pass obliquely forwards to the acetabula, nearly in the plane of the pelvic brim; they do not receive the great forces, to which they are subjected, in the exact direction of their length.

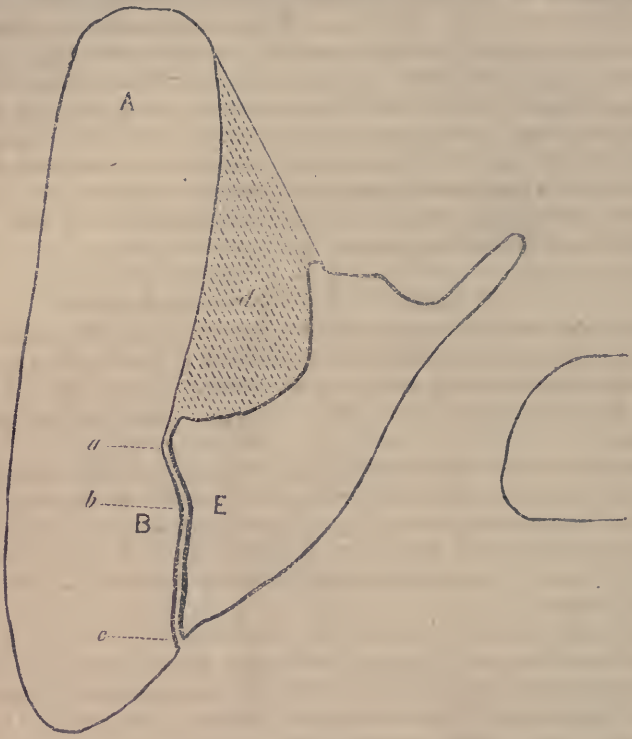

Fig. 1.

Further, as already stated, the upper half of the lower or horizontal limbs of the auricular surfaces (see figs. 1 and 2 *ab*), will also be wedge-shaped downwards. Both these last wedge-like arrangements of the sacrum, will certainly, when present (which is far from being always the case), tend to act upon the ilia wedge-like under the influence of the weight of the body. But, in the former of these two very limited arrangements, the convergence of the sides of the wedge is very slight, and in the latter, the extent in the vertical direction or length of the wedge, is very trivial. These circumstances will annul any marked wedge-like action and reduce their influence to merely what is called in mechanics, a "bite" or "joggle." Moreover, the descent of the sacrum, so as to act upon the ilia like a wedge, is rendered impossible by the massive and powerful posterior sacro-iliac ligament.

Into this subject much mechanical error has been introduced by M. Cruveilhier, in which he has been followed by some of the latest writers on this subject. It is a primal law in physics, that a force transmitted through a solid body is not changed in its direction by any change of the body's direction, nor influenced in direction by the shape of the body. Forgetful of this, these authors, in their zeal to prove the wedge-like action of the sacrum, have erroneously represented the force of the weight of the body transmitted through the spine, as changed in its direction with the changing direction of the different parts of that column, changing also at the promontory of the sacrum, so as to be directed downwards and backwards upon that bone.[1] Under such a supposition the sacrum might be compared in action to a wedge. But what I have already said, shews such a supposition to be absurd.

2. *The Sacrum as the Keystone of an Arch.*

It is unnecessary to spend time in showing that the sacrum cannot act as the keystone of the so-called pelvic arch, seeing we have already shown that it does not act like a wedge, a mechanical power to which every keystone must have a resemblance both in form and function.

But even allowing that the sacrum has no function analogous to that of a keystone, there is yet another question to decide, namely, whether the whole arch-like vault of the pelvis, resting on the femora, is analogous to an arch farther than in mere form. Its archlike shape, and the distant similarity of the changes it undergoes in becoming deformed from softening of the bones, to the changes produced by pressure from above on an overburdened arch, make the comparison of the two at least an elegant allusion fitted to impress certain important facts on the memory. But a consideration of the structure of an arch, and of the mechanical advantages which it presents, make it apparent that this comparison of the pelvis is far-fetched. The explanation of the mechanical relations of the sacrum, which we give in the next section, appears to us to be much simpler, and is the only one consistent with the real circumstances of the case.

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[1] "In order (says Cruveilhier) to understand the advantage arising from this form (the double wedge-shape of the sacrum itself), it is necessary to remark, first, that the weight of the trunk is transmitted in the axis of the upper half of the sacrum, and, consequently, in the direction of a line sloping downwards and backwards; from this it follows, that the sacrum must have a tendency to be displaced either downwards or backwards, but the displacement downwards is prevented by the position of the ossa innominata, which are nearer to each other below than above. The displacement backwards is obviated by the oblique direction of the articular surfaces of the same bones backwards and inwards, whilst the obliquity of the sacrum itself is in the opposite direction, for it is broader in front than behind."—*Descr. Anat., Engl. Translation, Vol. I.*, p. 204.

"But (says Mr Wood), as Cruveilhier has justly observed, forces acting in the curve of the lumbar vertebræ are partly counteracted by the elastic spring-like yielding of the lumbar and sacro-lumbar fibro-cartilages; and by the lumbar-curve they are, at the same time, directed backwards as well as downwards"—*Cycl. of Anat. and Physiol. Suppl.*, p 142.

"It is true, indeed (says Mr Ward), as Cruveilhier observes, in explanation of his opinion on this point, that the force which the sacrum habitually sustains (namely, the constant pressure of the trunk), tends always to thrust it downward and backward, and never, in any degree, towards the cavity of the pelvis." —*Human Osteology*, p. 261.

When the pelvis is described according to this comparison to an arch, as it may justly be, so far as mere shape is concerned, it is divided into two parts. Of these the upper is the larger and stronger, it is subtended by an imaginary line joining the acetabula. The lower is the smaller, it is often called a counter-arch, and is subtended by the same imaginary line as the other. This separation of the pelvic circle into two parts, it is of great importance to keep in mind in studying the development of the pelvis. In the explanations which follow, the anterior arch will be left entirely out of view. The justice of this is not at first sight obvious; but it is evident, if the anatomist recollects that the lower arch is not joined to the upper arch by any other than cartilaginous union, during the time in which the pelvis is becoming developed into its perfect shape; a circumstance which will greatly, if not entirely, destroy its influence in modifying the shape acquired by the upper arch. It is not till after the period of puberty is passed, and after the consolidation of the ischium to the ilium that the pubis at length becomes consolidated to both. This fact, and the slight mobility of the pubic joint, will almost, if not altogether, annul its influence in modifying the development of the upper half of the pelvis.

3. *The true Mechanical Relations of the Sacrum.*

Having shown that the sacrum is not justly compared to a wedge or to the keystone of an arch, and having, in course of the discussion, pointed out the anatomical peculiarities of the sacrum, important in this point of view, we proceed at once to consider the real relations of the sacrum.

The sacrum, then, is to be regarded as a strong transverse beam curved on its anterior surface, and having its two ends, being the two auricular surfaces, in contact with the corresponding parts of the iliac bones. It is so formed and placed between the two iliac bones, that, under the weight of the body or any vertical pressure, it cannot act as a whole like a wedge. But, as already pointed out, there are certain limited parts of the auricular surfaces of the sacrum so arranged as really to have a wedge-like action. These are so limited, however, as not to be of nearly paramount importance, but act as what are called "bites" in engineering.

The whole weight of all the upper parts of the body is transmitted through the vertebral column to the sacrum. How then is the sacrum retained *in situ*? Above and behind the auricular surfaces, are attached the posterior sacro-iliac ligaments [*d*] which unite these parts to the corresponding rugosities on what may be called the posterior iliac tuberosities (see Figs. 1 and 2 A). From the former to the latter parts, the fibres of this, which is the strongest ligament in the body, run obliquely upwards and outwards. The sacrum has nothing to prevent its being depressed under the weight of the body, but these ligaments, to which the weight is all transmitted, and again through them to the posterior iliac tuberosities.

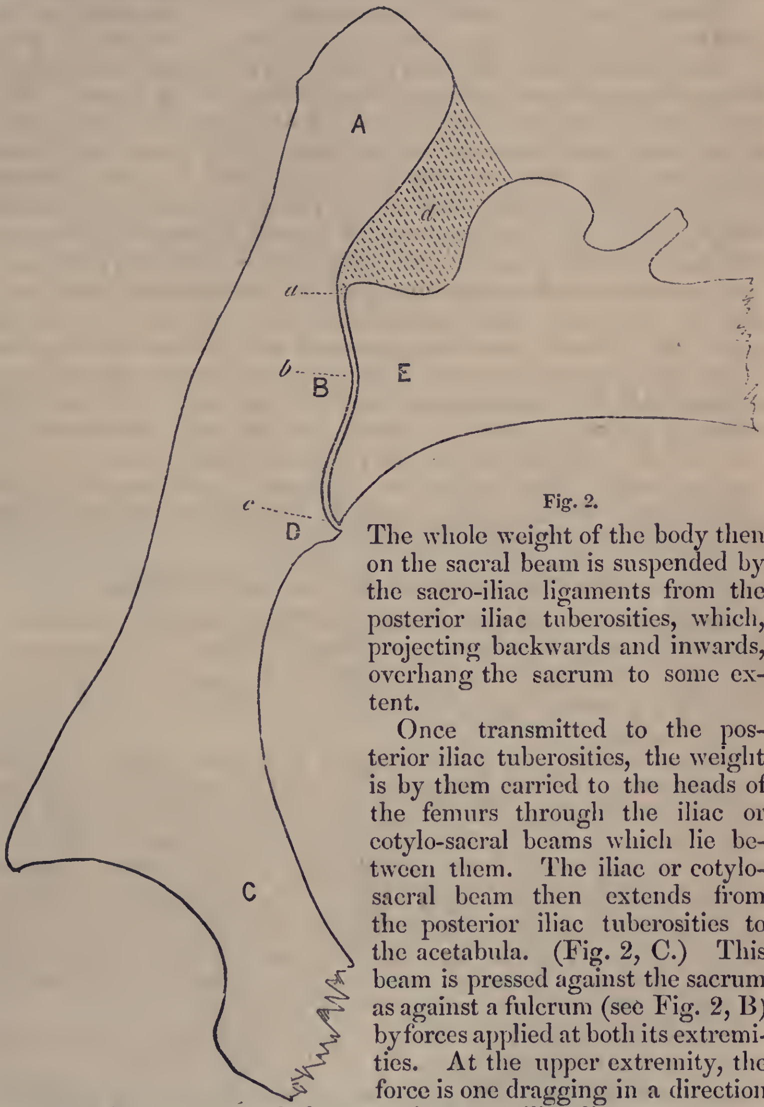

Fig. 2.

The whole weight of the body then on the sacral beam is suspended by the sacro-iliac ligaments from the posterior iliac tuberosities, which, projecting backwards and inwards, overhang the sacrum to some extent.

Once transmitted to the posterior iliac tuberosities, the weight is by them carried to the heads of the femurs through the iliac or cotylo-sacral beams which lie between them. The iliac or cotylo-sacral beam then extends from the posterior iliac tuberosities to the acetabula. (Fig. 2, C.) This beam is pressed against the sacrum as against a fulcrum (see Fig. 2, B) by forces applied at both its extremities. At the upper extremity, the force is one dragging in a direction corresponding to that of the posterior sacro-iliac ligaments, more

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The above figure represents a section of the pelvis through the iliac beams, in a plane parallel to that of the brim.

or less in a line towards the centre of the pelvic circle. The force at the lower extremity is the reacting force of the weight of the body pushing in a direction upwards and inwards, also towards the centre of the pelvic circle. Both of these forces press the beam upon the fulcrum or auricular surface of sacrum (E), which it is of importance to observe, is not in the centre of the beam but nearer its upper than its lower end. The auricular surface is in mere distance but little nearer the upper than the lower extremity of the beam, but mechanically viewed is much nearer, for while the force applied to the lower end of the beam is applied to its extremity only, that applied to the upper is applied over its whole surface above and behind the auricular portion, and therefore the length of this arm of the beam is counted, in the mechanical problem before us, only to the centre of the parts to which the force is applied.

(*To be continued.*)

ARTICLE III.—*Diseases of the Spinal Cord and its Membranes.* By EVANS REEVES, M.D.

(*Continued from p.* 506 *of the Monthly Journal.*)

General Symptoms of Acute Spinal Meningitis, with Implication of the Substance of the Cord.—Implication of the substance of the cord seems to take place much more frequently as a secondary than as a concomitant affection. This was the case in six of the eight cases where the cord and the membranes were affected, and in one which has fallen under my notice within the last few days; in the other two, the cord and the membranes seem to have become affected nearly at the same time in one, while in the other it was the cord, the meningitis being but slight. In seven of the nine cases, including the one lately observed, it was the arachnoid which was inflamed, while in the other two both the arachnoid and pia mater were affected. The most frequent lesion observed, when the cord became implicated, was that of acute softening; this was the case in seven of the nine cases; in the other two pus was formed, in one it was enclosed in a distinct cyst, while in the other it was loose in the substance of the cord, but limited in extent. Two only of the seven cases of softening were preceded by symptoms of the second stage of inflammation of the cord, namely, increased cutaneous sensibility (not marked in one case), contraction and rigidity, with convulsive motions of the parts, supplied by nerves arising from that part of the cord affected. In five of the six cases, were the arachnoid and the cord affected, the last became implicated in the first about the sixth day; in the second, about the seventh; in the third, on the eighth; in the fourth, on the tenth; in the fifth, the period of its occurrence could not be determined; in the sixth case, the cord was much more affected than the arachnoid, the symptoms were, therefore, throughout referred to it and not to the membrane; in this case, pus was the result of the inflammation. In the two cases where the arachnoid, pia mater, and cord, were affected, in one (where pus was the result) it was nearly simultaneous; in the other (where softening was the result) it cannot be determined from want of data.

CASE IV.—*Acute Arachnitis terminating in Acute Softening—Death.*—A man, æt. 46, pale and emaciated, with a scrofulous aspect, a prisoner in the Aylesbury jail, complained, on the 3d of December 1848, the second day of his imprisonment, of burning pains in the lower half of the spine and pains in the limbs, with fever. He referred the symptoms to exposure to cold and wet on his way to the prison in an open cart. He had had a warm bath on his admission, and the symptoms declared themselves soon after, by chilliness and intense cold along the spine. The symptoms were not strongly marked, and attracted but little attention; he kept to his hammock, less from indisposition than from the pains in the limbs being aggravated by motion. Some saline medicine, with colchicum and Dover's powder, was given him every six hours. On the fourth day, he complained, for the first time, of inability to stand. When requested to walk, he made three or four vacillating steps along the cell, his legs then sunk under him, and he was in danger of falling. The other symptoms were the same, the bowels open, and the urine passed freely. The pains in the limbs were not severe, they were referred to the muscles, the joints being free. The pain in the spine had not increased in severity. It was burning, and to him my hand felt cold, though the reverse was experienced by myself. The cutaneous sensibility of the legs, the right one as high as the knee, the left as high as the calf, was extremely dull. When lying down they were free from pain, but on standing they felt benumbed. Voluntary motion of the ankles and feet was extremely difficult, particularly of the right extremity, but the toes could be moved, the great more freely than the others. A blister was applied to the spine, and three grains of iodide of potassium given with each dose of the mixture.

Up to the eighth, there was no alteration in the symptoms. On this day, when visited at 7 P.M., he complained of severe pain in the vicinity of the last dorsal vertebræ, which radiated along the walls of the abdomen, down the outside of the thighs and legs generally as low as the soles of the feet, where the pain was more intense than in any other part; the paralysis had not increased, but the fever was severe, and the pulse had risen from 84 to 96. An opiate was given.

Ninth day.—The opiate did not relieve the pains, but merely deadened them. They were now less severe, as was also the fever, and the pulse had sunk to 86. No urine had been passed since the morning of the eighth day. The catheter was therefore passed, and this was done daily up to the time of death. Voluntary motion of the thighs was much limited, but sensation was intact.

In the evening, the pains became again very severe, and lasted until 4 or 5 o'clock the next morning, when they gradually declined. When seen at 2 P.M., complete paralysis existed as high as the last ribs. He felt weak and exhausted, the pulse 72, active and soft. This day he passed a motion involuntarily. Wine, beef tea, and quinine, were ordered.

Eleventh.—He had had a slight access of fever last night, with pain encircling the abdomen, in the region of the umbilicus. It had subsided at the time when the visit was made at 11 A.M., but a feeling of constriction existed.

Twelfth.—An access of fever had occurred last night, and with it the pain; the paralysis had extended upwards to the tenth rib. An eschar, by means of caustic potash, on each side of the spine, was formed. It seemed to have the effect of limiting the paralysis, which up to the seventeenth day, made no progress. On this day, after a meal of meat and potatoes, vomiting was induced, which continued uninfluenced by the remedies given to check it, up to the nineteenth day, when it ceased. The paralysis was found to have extended as high as the seventh rib, but it was difficult to say whether the cessation of the vomiting was due to its establishment or not.

On the twentieth day diarrhœa set in, which continued up to the time of death, everything taken passing through him in a very short time. The emaciation increased, as did the paralysis, the whole of the chest and arms becoming successively affected. The day before death the respirations were fourteen in the minute and very weak, the heart's action feeble and irregular, voice nearly inaudible, mind intact. Death on the twenty-sixth day.

Post mortem twenty-four hours after death, in the presence of Mr Hayword. A slough had commenced to form on the sacrum. The veins in the cellular tissue, between the dura mater and vertebræ, were loaded with black blood, the sinuses the same. A large quantity of serum escaped from the arachnoid cavity, mixed with flocculi of lymph. The visceral fold of the arachnoid, in its lower third, was thickened from the deposit of lymph. The veins ramifying on the cord were large and tortuous. The cord itself presented a mottled appearance from purple spots, varying in diameter from sixpence to a shilling, existing on its surface, and extending, in some instances, to several lines in depth. They were more numerous in the lower half than in the upper. The cord was of the consistence of butter, and under a stream of water broke up into minute pieces. The brain, the lungs (which contained tubercles), spleen, liver, stomach, kidneys, and intestines, were unusually soft.

Case V.—*Arachnitis with subsequent implication of the cord.*—A male, æt. 18, of scrofulous aspect, by trade a plumber. He presents the following state, complete paralysis of sensation and motion as high as the eleventh ribs. The application of a hot plate to the soles of the feet excites but slight involuntary contractions of the flexor muscles of the thighs and of the glutei muscles. Both the fæces and urine are passed involuntarily, the first once a day, the last several times, particularly in from fifteen to twenty minutes after drinking, or if he moves about on his abdomen, the position he usually occupies during the day. His appetite is good, and he has gained flesh since the paralysis became established.

The following is the history of his case:—During the late severe frost, he had been much exposed to wet and cold, which brought on pain in the lumbar portion of the back. He had been subject to the same kind of pain, from time to time, on exposure to cold. It was not, however, very intense, and did not prevent him from working. At the end of about a week the pain increased in severity, and he experienced a feeling of weakness in the ankles, which was followed by the same state of the knees, accompanied by pain and numbness. He continued, however, to get about the house with the aid of a stick, and once he went to Westminster Hospital, a distance of a quarter of a mile from his house, but was obliged to return in a cab. His back was several times rubbed with an embrocation, and he took some medicine, which had the effect of acting on his bowels, which were confined.

The day after walking to the hospital, the thighs became the seat of severe pains, of a gnawing and shooting character, greatly increased by motion, and they were very sensitive to the touch. These pains increased in severity, and the parts in which they were seated became affected with cramps, which soon extended to the calves of the legs, and at last ended by drawing the heels up to the buttocks. With the cramps, the parts became subject to "workings," which greatly increased the pains.

Mr Morgan,[1] of Westminster, who saw the case at this time, describes these "workings" as convulsive twitchings of the muscles, the limbs were never thrown suddenly into a state of extension followed by sudden retraction. Once, when he grasped the ankle and attempted to straighten the leg during the existence of these convulsions, it was suddenly retracted. This gentleman had recourse to blisters, iodide of potassium three times a day, with calomel and opium at bed time. The pains and the convulsive twitchings gradually diminished, and with them the contraction, the limbs passing into a state of complete paralysis. This state was established about fourteen days from the time he was first seen by Mr Morgan. Fever was never very strongly marked.

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[1] I am indebted to this gentleman for the opportunity of seeing the case.

In the two cases where the arachnoid and pia matter with the cord, were affected, the symptoms presented considerable difference in their progress, duration, and the nature and extent of the lesions found after death.

Case VI.—*Inflammation of the arachnoid and pia mater, with implication of the cord—death.*[1]—A male, æt. 56, health good, began, from no known cause, to complain of pain in the left hand, attended by swelling but no discolouration. His appetite continued good. The application of leeches and the unguentum hydrargyri soon removed the pain. A few days later, severe pain was felt in the arm and shoulder of that side, which soon extended to the back, and then general stiffness of the whole body began to be experienced. He could lie only on his back, and every movement excited severe pain, which was referred to it. By degrees the power of moving his arms was lost, and then of the legs, which by and by lost all sensibility, the pricking of a pin not being felt. The lower extremities were, from time to time, affected with convulsive twitchings, accompanied by severe pain. The fæces were passed involuntarily, and the urine was retained. Pain of a severe burning nature was referred to the back. Gradually the body became bent backwards. Death ensued from sloughing of the sacrum, on the 5th of February. The disease commenced on the 15th of January.

The vessels of the brain were found injected, and the lateral ventricles contained a large quantity of fluid. The cord, from the thoracic portion to the half of the cauda equina, was surrounded by fluid in which flocculi floated. The lumbar portion of the cord was softened, and the dura mater in this part was of a dusky hue and thickened. The left brachial plexus was red, the right was not examined from want of light.

The details of the *post mortem* examination are too scanty, and the same may be said of the history during life, to enable any just conclusions being drawn. But the general rigidity would point to the pia mater as the membrane affected, for I have never seen a case of arachnitis where it has existed.

Case VII.—*Inflammation of the arachnoid and pia mater, with implication of the cord—death.*[2]—A male, æt. 19. Eighteen months ago he had pleurisy, followed by scarlet fever, and subsequently he complained of wandering pains in the neck and loins, with general indisposition. Three months ago he had erysipelas. He became an out-patient of the hospital for the pains. They were considered as rheumatismal and treated as such, but without relief.

On the Friday (the 4th of May) before admission, the pains became aggravated in the neck, back, and loins, causing him to scream violently, and he had a great dread of any one touching him.

On the Monday (the 7th) when he was admitted, symptoms of fever existed; the pains in the back were rather less severe; he had great disinclination to turn in bed, and when raised an almost tetanic state of rigidity of the muscles of the neck existed, but these symptoms were not well marked until two or three days later.

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[1] Bermann of Coblentz, cited in *Medical Gazette*, 1843–4

[2] Dr Bright. *Guy's Hospital Reports*, 1844.

On the 10th of May he lost the use of his arms for a time, then the pain left him, but re-appeared when the power of motion returned.

11th.—Convulsions came on, his features were distorted, and he foamed at the mouth; his hands were clenched, and he was insensible; the rigidity of the muscles of the neck continued.

During the next day he had frequent attacks of convulsions; death. Trismus was present during the two hours which preceded death. The veins and the substance of the brain were congested.

On dividing the spinal cord, just below the medulla oblongata, some puriform-looking fluid exuded, as if from the centre of the cord, the cut surface of which was looser in texture than natural. Blood and lymph existed between the dura mater and the vertebræ; lymph and puriform matter between the arachnoid surfaces, and under the arachnoid itself, rendering this membrane slightly adherent and opaque. This opacity was seen in spots, and was evidently of a recent origin; it was most observable at the fourth and fifth cervical vertebræ.

General Symptoms of Cerebro-Spinal Meningitis and its Complications.—The disease may be first developed in the membranes of the brain, subsequently extending to those of the cord, or it may commence in both situations at the same time. The first was the case in nine of the thirteen cases, in the other four the last. The cord itself became implicated in three of the thirteen cases, in two of these the brain was also affected. In another case, tubercles in the brain had existed some time before the cerebro-spinal meningitis declared itself. The membranes of the brain, although it did not occur in either of these cases, become, however, sometimes secondarily affected in acute and chronic inflammation of the membranes and the cord. When it does take place, it is invariably fatal.

The cerebral meningitis often presented some diversity in the manner in which it commenced, and in the individual symptoms arising from the position and the extent of the disease. The symptoms commenced in some of the cases with feelings of general indisposition, chills alternating with or succeeded by heat, severe and more or less general headache, extreme agitation, delirium, face animated and flushed, eyes more or less brilliant, the conjunctivæ injected, with or without intolerance of light and noise. In these cases, the pulse was generally rapid, ranging from 96 to 120, and the fever severe. In others, again, these symptoms were altogether awanting, or so slight as to escape notice, attention being first drawn to the stupid expression of the face, often passing rapidly into a state of coma, accompanied by slight pain or a feeling of weight in the head. The pulse in some of these cases presented but little change, in others it was slower than natural and somewhat irregular, the heat of the skin sometimes but slightly raised, at others depressed, harsh and dry, or bedewed with clammy sweat. The mind, particularly in the last cases, and sometimes in the first, before the delirium was developed, although intact, yet received impressions but slowly, and the answers to questions, although just, were slowly delivered. In some of the cases the memory was defective, the temper morose or sorrowful; sometimes the ideas were confused, words being used contrary to the sense intended, or uttered with difficulty. Sometimes squinting with one or both eyes was present from the onset, or it occurred in the course of the disease, either with or without contraction and convulsions of the muscles of one or both sides of the face. The pupils presented various states, in some of the cases they were somewhat contracted, more or less intolerant to light, while in others they were natural or somewhat larger than usual, little influenced by light or dilated by it. In all the cases coma was developed soon or late, and was more or less profound according to the quantity of the fluid effused, and the rapidity with which it took place, or on the occurrence of softening or severe congestion of the brain. The symptoms which marked the extension of the inflammation to the membranes of the cord were in the cervical region, retraction of the head, immobility of the jaws, rigidity followed by contraction of the muscles of the neck, oppressed and accelerated breathing, difficult deglutition, and alteration or suppression of the voice; the parts affected being the seat of severe pain, which was greatly aggravated by motion and by the occurrence of shocks. Fever, if it was not before severe, now became so, the pulse often irregular, and the heart's action tumultuous. As the inflammation extended downwards, the muscles of the back, chest, upper extremities, abdomen, and lower extremities, became affected first with rigidity and pain, then contraction and convulsive shocks.

The symptoms indicating the implication of the cord were, the occurrence, in addition to the above, of increased cutaneous sensibility, aggravation of the convulsive shocks, succeeded, on the establishment of softening, by a state of resolution. It is, however, difficult to determine whether the cord is or is not implicated from the occurrence of the last symptoms, for increased cutaneous sensibility occasionally exists, probably from irritation of the nerves of sensation, the increased severity of the shocks of pain and convulsive contractions which accompany, arising from irritation of the motor.

Case VIII. *Simple Cerebro-Spinal Meningitis, Death.*—A single female, æt. 26, entered the workhouse-infirmary on the 5th of March 1849. On the night of the 1st of March, she had, while in a state of intoxication, slept for several hours on the ground. The next day she complained of severe headache, with pains in the back, limbs, loss of appetite, severe thirst, accompanied by a feeling of great weakness. She got up, however, and sat by the fire for the greater part of the day, but the next and succeeding day, she kept her bed.

She now complained of severe general headache; her face was anxious and flushed, expression dull, pupils rather larger than natural, answers somewhat uncertain, and speech embarrassed, at times she was delirious. Breathing somewhat laboured and oppressed; mouth half open, head drawn back, and the body in a state of general rigidity. This state was particularly marked in the neck and back, the arms and legs being comparatively free, but in the course of the next day, they became quite as severely affected. She lay in a motionless state, any attempt to move herself on her own part or by another person, excited severe pain, and caused her to utter piercing cries. Her pulse was rapid, 110, without much power; and the deglutition of fluid, although she craved for drink, difficult; skin hot, but otherwise natural; tongue red, and protruded with difficulty. She had a chancre on one of the pudenda, and a bubo of the size of a large chesnut, on the groin of the same side.

With difficulty ten ounces of blood were drawn from the arm. It had a marked effect in mitigating the symptoms. A few hours later, she was cupped to the same amount, from the side of the neck. The head was shaved, and rags wetted with cold water kept constantly applied to it, and two grains of calomel placed on the tongue every two hours.

6th. The blood drawn the day before presented but a very small amount of inflammatory coating. She had passed a very restless night, the delirium nearly constant, and from time to time she uttered loud groans. Beyond the increased rigidity of the arms and legs, the symptoms had undergone no change. Her bowels had not been opened since her admission, and as the descending colon felt distended, two drops of croton oil were placed on her tongue, and with the effect of bringing away a large quantity of fæces. Eighteen leeches were applied to the temples, and mercurial frictions were had recourse to, but the pain which the frictions excited, rendered it impossible to persevere with them.

7th. The early part of the night had been calm, and she had obtained some sleep, but towards morning she became very restless and delirious, uttering loud groans, from her body being affected with convulsive jerks or shocks. The vomiting, which had not troubled her since the first day, had now returned, and caused her much pain. This state continued at the time of the visit. The vomited matters consisted only of some watery mucus, and particles of bile. The convulsive jerks occurred in irregular accesses, lasting for half a minute. The tincture of aconite was now given every two hours, with marked relief to the vomiting, and with the effect of mitigating the shocks.

8th. To-day there was squinting of the right eye, and the muscles of that side of the face were contracted, and from time to time affected with contractions. The pulse had lost much of its rapidity; the face had assumed an aspect of stupor; the conjunctivæ were injected, the pupils larger, light causing them to expand. Twelve leeches were applied to the temples.

9th. The stupor had increased. Had passed a motion involuntarily.

10th. The stupor more marked than yesterday; the cheeks livid; pulse, 90, feeble and irregular; heart's action tumultuous; the rigidity remained the same; the convulsive contractions continued to occur, but less intensely; the cries were more feeble; the skin was hot and moist about the upper part of the neck and head, but on the rest of the body cold and bedewed with clammy perspiration. She sank during the night.

Post-mortem thirty hours after death. The sinus of the dura mater of the skull were loaded with black blood, and the vessels both of the membranes and brain were largely injected; the arachnoid generally thickened, covered with false membranous deposit; much fluid existed at the base of the brain, of a turbid character; the lateral and other ventricles were distended with the same kind of fluid, the membrane lining them thickened, and covered with exudation, their walls more or less softened; the septum lucidum was nearly diffluent. The brain presented no change beyond seeming somewhat softer than usual.

The vessels of the cellular tissue between the vertebræ and the dura mater were injected, the vessels of the cord and membranes, generally presented the same state. The spinal canal did not contain much fluid, it having escaped when the brain was examined. The visceral fold of the arachnoid was covered with a thick layer of false membranous deposit, the membrane beneath it was strongly injected, the fold lining the dura mater, was of a rose red. The cellular tissue between the arachnoid and pia mater contained gelatinous exudation and serum, and this last membrane was deeply injected. The cord itself presented no change beyond being more injected than usual.

The heart, lungs, liver, and spleen, were loaded with blood; the stomach injected; its mucous follicles distended; bladder distended with fluid.

CASE IX. *Sudden Hemiplegia from Tubercles in Brain, followed by Cerebro-spinal Meningitis—Death.*[1]—A male, æt. 13, entered on the 19th of March 1823. He had been subject during the course of last summer to attacks of severe headache. Eighteen days before admission, hemiplegia suddenly manifested itself, without any antecedent symptoms. His face was flushed; speech difficult, and without connection; tongue white, and appeared to incline to the right; deglutition difficult; cough; pain in the epigastric and hypogastric regions, increased by pressure; head thrown back, trunk rigid, with severe pain in the back, increased when any attempt was made to raise him; pulse sixty-four, feeble; the left side was hemiplegic, the extremities rigid, but sensation was intact; bowels confined, urine passed involuntarily. Nauseants, mustard poultices, leeches, and enemas were ordered.

21st. Deglutition freer, and face less coloured; pulse 68 to 72; fifteen leeches to neck.

23d. Pain in neck somewhat less; enemas, nauseant, and sinapisms.

24th. Motion of the left arm freer.

25th. Motion still better; severe frontal headache, which had existed since yesterday.

26th. Could raise the left arm with ease to the head; pain in the back less; pulse very slow. He continued in this state up to the 31st. An enema, with strychnine, was then administered, but without effect, and repeated on the 2d of April. On this day he complained of pains in the limbs and insomnia. On the 4th, the pains had increased, those of the neck were somewhat less, but the tetanic rigidity of the body had increased, and the right thigh was affected with contractions. The strychnine was continued.

5th. The pains of the lower extremities were increased, they followed the course of the sciatic nerves, and caused him to utter piercing cries; pulse slow. Strychnine discontinued. He continued in this state up to the 10th.

11th. Face altered; mouth drawn to the right; trembling of the superior extremities, particularly the right; pulse 100, small; pains in the groins and abdomen and neck, very severe in the last.

12th. Leeches; enemas, frictions with camphor liniment to the limbs.

13th. Slight remission; twelve leeches.

14th. General prostration; fæces passed involuntarily; pulse small and quick. Death on the 15th.

Post-mortem.—In the posterior and superior part of the right lobe of the brain, a bilobular tubercle, the size of two nuts, was situated in the white substance, the grey having in part disappeared; and four others, varying in size from a pea to a hen's egg, existed in different parts of the lobe. The left lobe contained four, each of the size of a chesnut. The brain surrounding them was not softened. An albuminous concretion existed between the pia mater and the arachnoid, extending from the divisions of the optic nerve, to just under the peduncles of the brain, and the lobes of the cerebellum; it was more marked on the right than on the left side.

In the spinal cavity an exudation, like that in the brain, existed throughout, between the arachnoid and pia mater; in the lumbar region, the cavity of the arachnoid contained pus. The pia mater was red, injected, and thickened; the cord itself was natural; lungs healthy; heart large; bladder distended with urine.

CASE X.—*Cerebral Meningitis, followed by Spinal Meningitis and subsequently by Myelitis—Death.*[2]—A female, æt. 14, well made, but had not yet menstruated, entered the hospital on the 16th of June. Her disease dates back five weeks, and was attributed to fright. Eight days before she was seized, her sister had been taken. Her attack commenced with a general feeling of indisposition, followed by a violent chill of one hour's duration; then, for eight days, she suffered from extreme agitation and constant delirium. Towards the third or fourth day, rigidity of the neck manifested itself, accompanied by pains in the back, loins, and lower extremities, which caused her to utter acute cries.

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[1] Leblond. Ollivier Obs. lxxi.

[2] Jadelot et Durand, *Vanier Clinique des Hôpitaux des Enfans*, tome 1.

By bleeding from the arm, leeches to the loins and behind the ears, she gradually became calmer, but the head was still drawn back, and cramps, with passing numbness, existed, with great feebleness of the lower extremities. Since ten or twelve days, the urine and fæces have been passed involuntarily.

17th.—Head thrown strongly back, the occiput being nearly in contact with the spine, the sterno-mastoid muscles hard and resistant, the lower jaw thrown forward. The spine in the dorsal and lumbar regions was less curved than in the upper. The thighs were strongly flexed on the pelvis. The upper extremities retained their motive power. Sensation was intact.

The lower extremities could be moved in bed, but they were too feeble to support the weight of the body. She complained of constant pain in the neck and back, and pressure on the spinous processes increased it. Intelligence good, answers the same, pronunciation is embarrassed, and the speech trembling; appetite good, heat of skin natural, pulse ninety, slightly developed, no command over the discharge of the urine and fæces, twelve leeches were applied to the neck, and nitre given.

18th. Same state; constantly desiring to be turned, yet the slightest motion induces pain in the neck, back, and loins; cold bath.

19th. Passed a tranquil night, less tension, slight diarrhœa.

20th. In the morning, a cold bath; the temperature of the body was so much reduced by it, that it was with difficulty restored; four eschars were produced by means of caustic potash.

21st. Yesterday and last night, the legs, thighs, and pelvis were the seat of severe pain, alternating with numbness. This morning the exaltation of sensation is such, that the slightest contact causes the patient to cry out.

During the ensuing fifteen days, the contraction offered slight variations in its degree of intensity; at times, the rigidity of the muscles diminished. The lower extremities were the seat of pains and temporary numbness, which occurred in different points, disappearing and returning at irregular intervals. The tactile sensibility was preserved, but the mind became gradually enfeebled; the emaciation and feebleness extreme, and the diarrhœa continued.

18th July. The contraction of the muscles of the neck, and the retraction of the head had reached the highest degree of intensity, and all signs of intelligence had disappeared.

The lower extremities could yet be moved a little. The legs were fixed in a state of flexion on the thighs; the retraction, which produced this, was increased at times. It appeared to coincide with the sudden appearance, or the exacerbation of the pains. The superior extremities preserved their motility, but the tendons of the fingers were agitated by slight but constant spasms. Pulse 110, very feeble; speech unintelligible. She is in a state of constant stupor. The pain, at times, seemed to rouse her from this state; pupils natural. The mouth was the seat of a pseudo-membranous exudation.

13th. This last had increased. Deglutition was difficult, and spasmodic contractions of the muscles of the jaw existed, and at times slight contractions of the jaws.

The following days, deglutition became impossible, the contraction of the jaws more marked. The arms alone were moved. Pain was still manifested if the skin was strongly pinched.

18th. Profound coma existed, pulse scarcely perceptible; death. *Post-mortem.* The rigidity of the muscles of the neck, and the retraction of the head, had disappeared, but the retraction of the flexor tendons of the legs, still existed.

On the convexity of the brain the pia matter was injected, and, in some parts, particularly at the bottom of the convolutions. At its base, in the space which corresponded to the floor of the third ventricle, a thick yellowish green deposit existed, which could not be raised without the subjacent cerebral substance; it also existed at the base of the annular protuberance, from whence it passed along the peduncles, to the space occupied by the corpora quadrigemina, then upwards on the cerebellum. The ventricles contained a little fluid. The white and grey substances were softened, it was most marked at the annular protuberance. The median lobe of the cerebellum was diffluent.

In the spinal canal, the pia mater on the medulla oblongata was infiltrated with milk-white semi-concrete pus; the substance of the medulla was quite diffluent. The upper third of the cord could alone be examined. A large quantity of rose-coloured serum existed in the arachnoid cavity. The pia mater was injected, and in parts it was infiltrated with the same kind of purulent fluid observed in the upper part. The portion of the cord examined was quite diffluent.

Her younger sister died of the same disease, and she presented throughout the same symptoms. The disease was, however, more chronic, it lasted a month longer, and was attended by less pain; the stupor did not show itself until late, and was not profound until the last moment.

The pia mater of the brain was injected; the ventricles contained a considerable quantity of serum, and their walls were diffluent. The grey substance of the brain was slightly softened. The pia mater of the medulla oblongata was thickened and infiltrated with pus, but the softening of the substance of the medulla was less marked than in the last case; fluid existed under the visceral membrane and false membranes, which adhered but feebly. The substance of the cord was injected, and, in several parts, little collections of pus existed.

Case XI. *Cerebro-Spinal Meningitis, implication of the Cord and Brain. Death.*[1]—A soldier, æt. twenty-one, entered on the sixth of December, the sixth day of his illness. He had suffered from ague at Anvers, and was but just recovered when he was sent on to Namur. He had now strabismus of the right eye, oppression, confusion of ideas, embarrassed speech, anorexia, diarrhœa, joints painful, skin cold, tongue pale and moist, pulse slow, weak, and irregular. In the evening his head was strongly retracted, skin hot, thirst intense, and several liquid motions had been passed. Twenty leeches were applied.

6th. He had passed a tranquil night, and had slept several hours, face stupid, heart's action confused and embarrassed, pulse slow and irregular.

7th. The night had been troubled, and several liquid motions had been passed. At the visit the right eye was turned backwards, the left one injected, speech embarrassed, the muscles of the right side of face were partially paralysed, mouth drawn to the left. He sat up, and could retain that position without effort. The neck was scarified, mustard applied to the feet, and an enema administered.

In the evening he was worse, the whole body was affected with convulsive movements, speech unintelligible and rambling, and a motion had been passed involuntarily. He attempted to stand, but staggered like a drunken man.

8th. Had passed an agitated night, groans; head thrown strongly back; mouth open, respiration, noisy, right arm contracted, legs flexed, the cutaneous sensibility was exalted to such a point, that the slightest touch induced convulsive shricks. He was insensible to all that was passing around him. A vein was opened, and a pint of blood taken. It relaxed the rigidity, and he became conscious; put out his tongue when requested to do so; uttered several words, and allowed his head to be brought into its natural position.

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[1] *Fallot Jour. Complement*, tome 37-64.

Three grains of calomel were ordered every four hours, and the actual cautery was applied to the neck. In the evening, he had relapsed into his former state.

9th. Laryngeal rale was added; the pulse was filiform, and very quick; the extremities in a state of resolution, and the skin cold, that of the head retained its natural temperature. Death in the evening.

Post-Mortem.—The sinuses of the skull were gorged with blood, and the occipital depressions filled with serum, much of which fluid flowed from the spinal canal. The arachnoid at the base of the skull was thickened; the subjacent cellular tissue infiltrated with serum, and the lateral ventricles, particularly the left, distended with the same. The septum lucidum was nearly diffluent, and the left corpus striatum of a deeper hue, and softer than its fellow. The vessels of the cervical portion of the cord were injected, the membranes of the middle part of the dorsal region, red and thickened, and between the folds of the arachnoid, a thick layer of partially coagulated blood existed; the cellular tissue, external to the dura mater, was infiltrated with serum. The cord opposite the fourth and fifth vertebrae, was softened. The spinal canal contained much serum. The lungs were gorged with blood, particularly the right, both contained tubercles, the small intestines presented patches of redness, and their mucous follicles were tumefied; bladder distended with urine.

ARTICLE IV.—*On the Extensive Diffusion and Frequency of Starch Corpuscles, in the Tissues of the Human Body.* By THOMAS ALBERT CARTER.

TWO years have now almost elapsed since Virchow first published his paper upon the presence of cellulose in the brain and spinal cord of man; in which he proved that the ependyma and its continuations contained bodies which, with sulphuric acid and iodine, struck a violet colour, concluding from this circumstance that their chemical composition was that of cellulose. He also found them in the olfactory and optic nerves, and in a "waxy" spleen. Subsequently, Rokitansky observed similar bodies in the optic nerve, and Kölliker in the retina. It remained, however, for Mr Busk to establish the fact, that the so-called cellulose corpuscles of Virchow were absolutely identical in every property—whether optical, physical, or chemical—with starch.[1] He, moreover, showed that this substance occupies a place in the tubular and vesicular portions of the human cerebrum and cerebellum. Since the valuable observations of Busk made their appearance, Mr Stratford of Toronto has published a short paper[2] "upon the presence of starch in the blood of an epileptic patient," in which he also states, that he has met with it in the matter contained in the eye of a boy, removed in consequence of fungus hæmatodes, and in several specimens of urine.

In December last, an unsuccessful attempt to make out the intimate structure of an indurated tumour involving the optic nerve, induced me, as a last resource, to apply the appropriate tests for the

[1] *Quarterly Journal of Microscopical Science*, for January 1854.

[2] Ibid., for January 1855.

detection of cellulose. To my great surprise, after the addition of the reagents, I noticed a number of bodies, generally circular or oval in outline, passing from the lightest shades of purple to the densest black: these were evidently the cellulose corpuscles of Virchow, or the starch bodies of Busk, the latter of which they have since proved to be. Shortly afterwards I observed the same bodies in the pineal gland of man, and of the sheep. I then abandoned this subject, more urgent duties soliciting my attention, but resumed its investigation about the middle of last May, and have continued it up to the present time.

It is unnecessary to give a description of the "amyloid" corpuscles, and the proofs in favour of their being actually starch, for this would be simply reiterating the statements of Busk respecting them, which by experiment I have found to be perfectly correct. It may, however, be remarked that, in my examinations of structures from the human subject, I have encountered two distinct varieties—the one (described by Busk) resembling wheat starch, the other, and rarer kind, corresponding in every particular with that derived from the potato. In dimensions they vary much, ranging from 1-195th to less than a 1-4000th of an inch in diameter, the usual size being the 1-1000th.

The following are the observations I have had an opportunity of making on a number of cases, and these, it must be remembered, have not been selected, but given in the order in which they presented themselves, none being suppressed.

Observation 1. A man, N., æt. 39 years, who died of phthisis pulmonalis, complicated with albuminuria.

A micro-chemical examination of the liver, which was of twice its ordinary weight, and presented in a marked degree the characters of waxy degeneration, revealed the presence of starch in great abundance. One demonstration exhibited fifty-two bodies of the ordinary size, adhering to, or imbedded in, a mass of transparent homogeneous tissue.

In the spleen and kidney, which were also "waxy," starch was found, abundantly in the former, in the latter somewhat sparingly.

Obs. 2. A woman, J. B., æt. 59 years, who died of apoplexy.

The tubular matter of the cerebrum, immediately surrounding the apoplectic clot, was subjected to an examination, and in it were found, associated with numerous compound granular cells, numbers of starch corpuscles. This observation does not apply to the healthy portions of the same brain, for, after a prolonged search, none could be detected. An ordinary amount[1] was observed in the spleen, kidney, and liver of this subject, all of which appeared perfectly normal.

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[1] The expressions "small quantity," etc., I am aware, are extremely vague and indefinite; yet, by attaching to them a certain numerical value, they communicate an idea of amount with sufficient exactitude, and obviate the necessity of giving the precise number of bodies in each demonstration, which, to say the least of it, would have been a very tedious process. By the term "small quantity," as applied to the contents of a preparation, I wish the reader to

Obs. 3. A female, M. R., æt. 24 years, who died of phthisis pulmonalis.

In the liver, which was somewhat waxy and slightly enlarged, were found starch bodies of irregular form, as if developed in masses under pressure.

The spleen yielded a few. This, like the former organ, was in some degree waxy.

They were very numerous, and of large dimensions, in the kidney, many attaining to the 1-400th part of an inch in diameter.

I noticed, in the pancreas and mesenteric glands of this subject, numbers of corpuscles, generally of oval form, measuring about the 1-400th of an inch in their longest, and about half that in their shortest diameter. The hilum was placed near one extremity, with a series of concentric elipsoidal markings surrounding it. Moreover, when seen by polarised light, they exhibited the four black or coloured radii diverging from the hilum ; in fact, they were in every respect identical with the amylum of the potato.

Obs. 4. A female, J. H., æt. 23 years, who died of phthisis pulmonalis.

Starch was found in the liver, kidney, spleen, pancreas, mesenteric glands, and supra-renal capsules, all of which organs were healthy, with the exception of the mesenteric glands, these being slightly enlarged : also in an indurated tubercular mass from the lung.

Obs. 5. A man, J. B., æt. 38 years. The immediate cause of death unknown. The heart and larger vessels, however, were diseased.

In the liver (slightly enlarged, but in other respects healthy), kidneys, supra-renal capsules, spleen, corpora striata, pituitary body, and Pacchionian glands, starch was found. None could be discovered in the pancreas, after a very careful and prolonged search. This organ was very flaccid, and apparently diseased.

Obs. 6. A man, Y., æt. 17 years, who died of general anasarca.

The liver of this subject was congested, and to a small extent fatty ; the spleen rather pulpy ; both exhibited the usual amount. The pancreas, which was flabby, yielded a very small quantity. In a mass of degenerate pus found adhering to the peritoneal surface of the bladder, and in chronic pericardial exudation matter, they were also present.

Obs. 7. A boy, P., æt. 14 years, who died of apoplexy.

The liver, spleen, kidneys, supra-renal capsules, thyroid body, tonsils, and brain, contained starch in greater or less quantity. The kidney, in this case, was the viscus in which they were principally developed, both as regards number and size. By mensuration, I

understand from one to three corpuscles ; by "ordinary amount," from five to eight ; by "large amount," from ten to twenty or more. The value of synonyms, or intermediate expressions, will, of course, be duly appreciated.

ascertained that one of them exceeded the 1-200th of an inch linear. All the organs appeared quite healthy.

Obs. 8. A youth, æt. 17 years, whose death was occasioned by an enormous fibro-nuclear tumour growing from the abdominal parietes, and general anasarca.

The existence of starch was determined in the liver, spleen, supra-renal capsules, and pancreas; in the last mentioned organ the rarer variety. It was found in all parts of the tumour with the greatest facility.

Obs. 9 and 10. A female, E. G., æt. 16 years, and a man, A. C., 43 years of age, both of whom died of phthisis.

The following organs, which appeared healthy in both, contained the ordinary quantity:—the livers, kidneys, pancreatic and mesenteric glands. The supra-renal capsules of A. C. were examined, and with a like result.

Obs. 11. A man, æt. 33 years, who died of jaundice, together with œdema and erysipelas of the lower extremities.

All the organs mentioned in the two preceding cases were examined, and positive evidence of the presence of starch obtained; but the quantity in each was excessively small, more especially in the pancreas. With the exception of the liver, which was in an incipient state of cirrhosis, and deeply impregnated with the colouring matter of the bile, all the viscera were normal.

Among, and also within, the wavy bundles of fibrous tissue from the mesentery, starch grains of the ordinary dimensions were scattered with tolerable regularity, but for the most part at rather wide intervals.

Obs. 12. A child three weeks old. Cause of death unknown.

The liver contained a more than ordinary quantity: the kidney, spleen, and pancreas, the usual amount.

Obs. 13. A man, D. L., æt. 25 years, who died of diabetes mellitus.

Starch was of excessively rare occurrence in the liver of this subject; less rare in the pancreas; and the general amount observed in the spleen, kidneys, mesentery, and the white and grey matters of the cerebrum. Little was seen in the cerebellum.

In the ovaries and healthy portions of the lungs of two individuals, who died of phthisis, its presence was determined; but none was discovered in the muscular substance of their hearts.

With a view of deciding whether starch is peculiar to the human subject, I submitted to examination the cerebrum, cerebellum, the liver, lung, spleen, kidney, striped muscular and areolar tissues, from the sheep; also the liver, lung, and yellow elastic tissue from the ligamentum nuchæ of the ox, the same facts being established regarding the structures from these animals as were previously mentioned with respect to man.

My observations have not been restricted to organs and tissues entirely, but extended to the various secretions and products of the body, in their normal as well as abnormal conditions. Thus, I have seen starch in healthy blood drawn from the finger, in pus, cancer juice, chronic lymph, bronchitic sputum, icthyosis scales, tubercular matter from the lung, and in the urine (both alkaline and acid) of patients labouring under divers maladies:—Bright's disease, dyspepsia, acute articular rheumatism, pneumonia, etc. In some instances, it was associated with oxalates and phosphates, in others with uric acid and urates, and, again, as in the case of Bright's disease, and of a convalescent from rheumatism, with no deposit, save an almost inappreciable amount of epithelial debris.[1]

It may appear astonishing or perhaps incredible to many, that a substance so universally distributed should for such a long period have remained almost unnoticed by microscopical observers. The solution of this apparent enigma will, however, appear sufficiently simple when fully explained. It is well known to those who have applied themselves to the histological study of the various organs and tissues that fatty matters, frequently in the form of oil-globules, are almost invariably interspersed among the morphological elements of which they are composed. Now, to these globules the animal starch corpuscle bears a very marked resemblance, not merely in general form, but likewise in refractile properties. Can it then be looked upon as a matter of surprise, that the two have been confounded by those who have neither by chemical nor other means endeavoured to discover their nature? In some instances, when recognised, as they often have been in the urine, they were considered either as fraudulent additions to, or accidental admixtures with, this excretion; possibly, with correctness in some cases, though by no means in all, as I have satisfied myself by experiments the most rigid.

Professor Bennett has pointed out to me the observations made by Schrant on Colloid corpuscles, and from the figures published by that observer, it would appear very probable that these also must occasionally have been mistaken for those of starch.[2]

If, then, the facts here recorded be taken for granted, the question immediately suggests itself:—are starch granules, when met with in the localities enumerated, the offspring of pathological causes, or the results of the healthy action of the economy? The majority of cases cited clearly show that they must generally be esteemed as physiological products, although, as with the other constituents of the healthy body, an excess or diminution of them, or an *error loci*, may induce or constitute disease, and will probably hereafter be found to do so.

Regarding their functions, little can in the present state of our knowledge be said, except, perhaps, that they may be looked upon as thermogenic magazines, analogous to, but not identical in action with, the fat cell. We may indeed suppose, from their easy convertibility into grape sugar, and of this by oxidation into carbonic acid and water, that from them caloric is generated when a sudden demand is made for it by the system. Another, and a totally different, view may be taken of the purpose they subserve in the economy, and one which does not carry us beyond the limits of possibility; viz., that instead of being converted into the compounds previously mentioned, they are simply metamorphosed into the lactic acid of the gastric secretion.

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[1] The great majority of the above cases have occurred in the clinical wards of Prof. Bennett, to whom I have shown these bodies in the tissues and fluids referred to, and who has confirmed their presence.

[2] *De Colloid-metamorphose der cel.*

I certainly anticipated that an examination of the organs from the diabetic subject would have furnished a clue to the comprehension of the physiological and pathological importance of starch, but in vain. Upon reference to this case, it will be observed that, although of very rare occurrence in the hepatic and pancreatic organs, the usual amount was present in the others, so that no conclusive inferences could be drawn.

The development of individual starch grains in the plant is involved in so much obscurity that botanists have but partially elucidated the subject. I therefore refrain from hazarding an opinion upon their mode of growth in the animal tissues, though inclined to believe that both in the plant and animal their development is similar. In the former, as a general rule, a number of corpuscles is produced within the cavity of a cell; in the latter, this condition is apparently the exception. I have certainly, now and then, seen them occupying the cavity of large flaccid cells, but more frequently either isolated, or aggregated and cohering by interposed homogeneous matter, which was either tinged yellow or remained unaffected by the solution of iodine.

Before concluding, let me remark that the chief aim in bringing these crude facts before the public has been to show that man, in common with some of the lower animals, must be regarded as a starch secreting organism, thus adding strength to that connection which exists between the animal and vegetable worlds.

[Since sending this article to press, my attention has been directed to a translation, in the *Microscopical Journal* for last month, of Virchow's paper "On the Cellulose Question." Limited space prevents me from even incidentally referring to the statements there made, some of which, the reader will observe, differ from the foregoing observations.]

Article V.—*Quarterly Report of Cases occurring at the Edinburgh Eye-Infirmary.* By Robert Hamilton, M.D., F.R.C.S.E., and Benjamin Bell, F.R.C.S.E.

April 1st to June 30th.

Tumours of Eyelids,	4
Wounds, Inflammation, Ulcer, Abscess of Eyelids,	5
Hordeolum,	1
Ophthalmia Tarsi, etc.,	15
Inversion of Eyelids,	1
Epiphora,	2
Inflammation of Lacrymal Sac, Fistula, etc.,	2
Strabismus,	3
Wounds of Conjunctiva, foreign bodies, etc.,	7
Inflammation of Conjunctiva, acute,	15
Do. Do. chronic,	20
Do. Do. New-born Infants,	1
Do. Do Muco-purulent,	1
Do. Do. Phlyctenular and Pustular,	13
Do. Do. Strumous,	3
Do. Do. Catarrho-rheumatic,	2
Granular Conjunctiva of Palpebrae,	1
Wounds of Cornea, "Fires," etc.,	4
Inflammatory affections of Cornea,	16
Abscess of Cornea,	2
Ulcers, Vascular speck of Cornea,	3
Opacities of Cornea,	7
Warty growth of Cornea,	1
Staphyloma,	3
Megalophthalmos,	1
Detachment of Iris from Ciliary Body,	1
Inflammation of Iris, syphilitic,	2
Synechia, anterior and posterior, Opacities of Capsule,	2
Cataract, Idiopathic,	5
Do. Traumatic,	2
Do. Congenital,	1
Asthenopia,	3
Hemeralopia,	1
Amaurosis, Glaucoma, Retinitis,	11
	160

Strabismus.—It is admitted by all who have had considerable experience in the surgical treatment of strabismus, that the operation is often followed by more or less improvement of vision in the affected eye; but many authorities seem to doubt if this improvement ever takes place immediately. Dr Mackenzie goes the length of asserting, in the recent edition of his work, "that there is never any immediate change in the visual power of the eye, as is ascertained by trying it with the letters of the same printed book with which it was tested before operation." We had the opportunity very lately, of ascertaining in the most unequivocal manner, that an immediate improvement did take place in one case at least, confirming a previous impression produced both by personal experience of a less precise nature and by the testimony of others. A youth of seventeen applied for advice at the Eye-Infirmary on account of an alternating squint, so decided in both eyes that it required some little care to determine which of the two was chiefly at fault.. With the right eye, the other being covered, he could read no print smaller than this:—**EDINBURGH.** With the left eye, his sight was good. It was inferred, therefore, that the former was the eye which chiefly required an operation. The muscle was no sooner divided, and the squint rectified, than the visual power of the eye was again tested. He could now read with facility, although the eye was still suffused with blood and tears, the smallest type on our dispensary card, as follows:—***When the Patient returns.*** This curious fact, which may be more common than is suspected, seems to teach us that the defective vision so general in cases of squint, even when the cornea is transparent, may depend, not on mere disuse of the retina, but on some disturbance of the adjusting power of the eye, from undue pressure of the adductor muscle. May there not also be cases of impaired vision, as suggested by Mr Holthouse, in which one of the oblique muscles is exclusively at fault? The strabismus in that case, from the peculiar function of these muscles, might escape notice altogether, unless the possibility of its existence were borne in mind.

Warty Growth of Cornea.—D. B., a hale healthy-looking man from Fifeshire, about sixty years of age, applied for advice on account of a peculiar growth on the cornea of his right eye. First noticed in the autumn of 1852, at the outer margin of the cornea, it has been gradually encroaching upon the clear part of the eye, in a semicircular direction upwards and downwards, and now threatens to obstruct the access of light to the pupil. The morbid structure conveys the idea of hypertrophy of the corneal substance, which it resembles in colour, but differs from in not being transparent. It increases in thickness from the periphery of the cornea towards the centre, and, when viewed in profile, is seen to terminate by a somewhat abrupt edge of half a line in depth. The surface of the growth is slightly nodulated, but without any appearance of abrasion or ulceration. There has been no pain, and little inconvenience, except from the progressive narrowing of the field of vision. Several large vessels, under the conjunctiva, are seen running towards the morbid growth; but there is no tendency to inflammatory action. This form of disease must be very rare, as we find no allusion to it by any of our systematic writers. The only case at all analogous is detailed by Mr Bowman in the appendix to his lectures; but in that case, the warty growth succeeded a severe ophthalmia implicating the iris. In the case of D. B., our only treatment consisted in pinching up and dividing the vessels. This was followed, according

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[1] Since writing the above, we have met with another case nearly identical. Before the operation, the patient, a boy of sixteen, could read type of this size—**OPEN,** with hesitation; immediately after it, he could read the smallest on our card with facility.

to the patient's account, by a portion of the growth being detached; but, on his return, after many months, it had spread, as already mentioned, both upwards and forwards. Some conspicuous vessels were again divided; but as he has failed to return, the result is doubtful.

Inflammation, Ulcers, and Abscess of Cornea.—These forms of disease often cause much anxiety to the surgeon, and sometimes baffle his best directed efforts. Few practitioners in the present day will regard them as mere local affections, irrespective of the health and constitutional state of their patients; and it is, therefore, almost needless to say, that each case requires to be specially studied and treated as to diet and règimen, no less than as to internal remedies and outward applications. But we meet with cases which do not yield to ordinary measures. The ulcer deepens from day to day, threatening to penetrate the lining membrane; the abscess enlarges; the pus in the anterior chamber accumulates, or the opacity of the cornea becomes more confirmed. What can be done, under these circumstances, to save the eye? We have found no remedy nearly so efficacious as evacuating the aqueous humour. The immediate relief to suffering is almost invariably very marked, and the patient, who has been sleepless for many nights, with circumorbital pain, tells you next day that he has had no return of it. But the diseased action has also undergone a decided change for the better. The redness has changed its hue; the ulcer is arrested; the cloudiness of the cornea is clearing away. Several cases, during the last three months, have fully vindicated the favourable testimony which we ahve previously borne to this procedure—recommended many years ago by Mr James Wardrop, in one of his admirable essays—but never, as we think, sufficiently appreciated by the profession.

The aqueous humour must be thoroughly discharged, and this in a precise and careful manner. A sudden stab with the knife or needle will not answer the purpose, for, besides endangering the iris and capsule, it does not give time for the fluid to escape. The instrument is to be entered horizontally, with as much accuracy as for extraction of the cataract; it should then be slightly inclined so as to permit the aqueous humour to pass out, and gradually withdrawn as the chamber becomes empty. In this way, no injury is done to important parts, and the small incision speedily heals. The shape of the knife or needle is not of much moment; but the most convenient, probably, is a thin lancet-shaped blade, with keen edges, as far as the shoulder, and about the tenth of an inch in breadth.

On the Electrical Apparatus in Torpedo, ymnotus, Malapterurus, and Raia. By JOHN GOODSIR, F.R.SS.L., and E., Professor of Anatomy.

(*A Lecture delivered in the University of Edinburgh. Summer* 1855. *And specially reported for the Journal.*)

MR GOODSIR commenced by stating, that the electrical apparatus in the fish consists of three parts, the battery, the nervous centre, and the internuncial cord.

The following would appear to be the general expression for the structure of the battery—a very large number of laminæ, consisting of vascular nucleated texture, largely supplied with centrifugal nerve fibres, distributed on one of their surfaces only; so arranged in reference to one another, and to thin intervening layers of fluid, as to constitute a uniform series, in the order, nerve surface—cellulo-vascular surface—fluid, nerve surface—cellulo-vascular surface—fluid, etc. etc.

The nervous centre consists of a portion of the cerebro-spinal axis developed in relation to the large nerves distributed to the battery; and so organised, as to be capable, not only of excito-motory action, but also of being subjected to the influence of the will.

The internuncial cord is a centrifugal nerve, connected at one extremity to the nervous centre of the apparatus, and at the other distributed on the nervous surfaces of the laminæ of the battery.

In Torpedo there are two batteries which occupy the two spaces between the pectoral fins, the head, and gills. Each battery consists of a number of hexagonal, pentagonal, or tetragonal prisms, which vary in number from 400 to upwards of 1000, according to the age of the animal. The prisms extend perpendicularly between the dorsal and abdominal integument; and are separated from, and connected to it, by a thin but dense aponeurosis, which at the same time separates them all from, and connects them to one another, by passing inwards in single layers, so as to form a continuous series of prismatic aponeurotic compartments, in the interior of which the prisms are situated. Each prism consists of delicate, horizontal, superimposed laminæ, separated from one another by thin layers of fluid, so that the arrangement bears a general resemblance to a galvanic pile. It has hitherto been supposed that the laminæ are connected by their margins to the aponeurotic wall which surrounds the prism; but Pacini (*Sulla Struttura intima dell organo elettrico del Gimnoto, e di altri pesci elettrici*, 1852) has lately shown that the laminæ are attached by their angles only to the corners of their aponeurotic sheaths; and that an entire pile may be removed from its containing cavity, by cutting the four, five, or six series of attachments by which it is fixed. It is extremely important that the structure of the laminæ should be determined. Valentin (*Electricität der Thiere, in Wagner's Handwörterbuch der Physiologie*) states, that each lamina consists of a thin prolongation of the aponeurotic wall of the pile, covered above and below by an epithelial layer, and affording a matrix for the ultimate divisions of the vessels and nerves, which, he is inclined to believe, are so arranged, that the terminal nervous plexuses are placed towards the upper, the capillaries towards the lower surface. Savi (*Matteucci and Savi, Traité des Phenomènes Electro-Physiologiques*, 1844) describes the elementary filaments of the nerves as forming a network by anastomosis in the lamina; but Rudolph Wagner (*Annales des Sciences Naturelles*, 1847) has shown, that each elementary filament, enveloped in a very thick sheath, divides at once into twelve to twenty-five secondary filaments, which passing towards the laminæ, splitting into two or three ternary filaments, and losing their envelopes and dark contours, disappear in the soft, dotted, nucleated substance of the laminæ, without forming meshes. Pacini (*loc. cit.*) has lately made a most important addition to Wagner's description of the laminæ. The laminæ, or electrical diaphragms, as Pacini terms them, are attached, as has already been stated, by their angles only. The vessels and nerves enter at these points, but so as to be at first placed on the under surface of the diaphragm, and therefore in the fluid interposed between that surface and the upper surface of the diaphragm below. Passing inwards and ramifying in this fluid, they ultimately pass up to the under surface, and the nerves are distributed *on that surface only* of the diaphragm to which they belong. Now, as the dorsal surface in Torpedo is positive, and the abdominal surface negative, it follows, as Pacini has indicated, that the upper surface of each electrical diaphragm, consisting only of soft, dotted, nucleated vascular texture, is positive, while the under surface, on which the nerves only ramify, is negative.

Pacini was led to the observation of the position of the nerves in the electrical diaphragms of Torpedo, by the more complex structure which he had previously discovered in the corresponding parts of Gymnotus.

Gymnotus possesses four batteries, which extend nearly the whole length of its eel-like body, from behind the pectoral fins to the extremity of the tail; forcing the lateral muscles towards the dorsal, and the comparatively small abdominal viscera, with the anus, towards the cephalic region. The great or dorsal batteries are separated from one another above by the vertebral column, great vessels, displaced lateral muscles, and the air-bladder; below by a mesial aponeurotic septum, along which the nerves pass to the batteries and ventral fin. Laterally these dorsal batteries are intimately connected to the skin; and inferiorly are separated from the ventral, or small batteries, by a thin layer of muscle. The small batteries are, moreover, separated from the skin by the laterally displaced muscles of the ventral fin; but are intimately connected to one another by a thin aponeurosis only. These small batteries are, therefore, peculiar, not only in their close approximation, but also in being enveloped in muscular substance.

The batteries in Gymnotus consist of a number of piles placed horizontally in a direction from head to tail. From this circumstance, as well as from their peculiar structure, they are aptly compared by Rudolphi to galvanic troughs. These troughs are in the form of flattened masses, separated from, but connected to one another by aponeurotic septa, which diverging, extend outwards from the inner to the outer aspect of each battery. It is not easy to determine the exact number of the piles or troughs in a battery, as they vary in number in different parts of it, and are lost as they pass backwards and downwards. From the statements of Mr Hunter (*An Account of the Gymnotus Electricus.* Phil. Trans. 1775), and Valentin (*loc. cit.*), and the lecturer's own observations, the number of troughs in the great battery ranges from thirty to sixty; in the lesser from eight to fourteen. Hunter (*loc. cit.*), Rudolphi (*über die electrischen Fische in Abhand. der Akad. zu Berlin*, 1822), Knox (*Edin. Jour. of Science*, 1824), Valentin (*loc. cit.*), and all observers previous to Pacini, state what may be easily verified, that the troughs in Gymnotus consist of numerous perpendicular laminæ, which extend transversely between the aponeurotic septa, with fluid interposed, as in the piles of Torpedo. Pacini's account (*loc. cit.*) of the structure and relations of the electrical laminæ or diaphragms of Gymnotus is much more precise; and elucidates in a remarkable manner a structure hitherto sufficiently obscure. The more important features of Pacini's account, as verified by the lecturer, may be thus described. Each of the electric diaphragms in Gymnotus, instead of being, as in Torpedo, a single lamina with the nerves distributed on one of its surfaces, consists of two laminæ, with a thin layer of fluid interposed. The posterior of these is a delicate, wide-meshed, fibrous layer, in which alone the nerves ramify; the anterior consists of a thicker layer of the peculiar vascular, dotted, nucleated texture which forms the laminæ in Torpedo. Both surfaces of the vasculo-cellular layer present an arrangement of prominent, close-set, undulating ridges, with thick, rounded, nucleated margins. The ridges are more fully developed on the anterior than on the posterior surface of the layer, and from the ridges of the latter a number of thread-like prolongations pass backwards through the interposed fluid to the fibro-nervous layer, so as to connect the two layers as one compound lamina. From the measurements and calculations of Pacini, the superficial extent of the anterior surface of the vasculo-nucleated layer is increased by this ridged structure from five to six times, the posterior about twice.

The electro-motor series, therefore, in Gymnotus, instead of simple laminæ, as in Torpedo, consist of compound laminæ separated by layers of fluid. There are thus two kinds of fluid in the electromotor series of Gymnotus—firstly, that between the vasculo-cellular layers and the fibro-nervous; and which must be considered as an element of each compound electric diaphragm; and, secondly, that between any two electric diaphragms, which is the homologue of the fluid layer in Torpedo.

As the current in Gymnotus passes from before backwards, Pacini denominates the vasculo-cellular layer the positive, and the fibro-nervous layer the negative element, of the electro-motor series.

Mr G. now proceeded to describe the batteries in Malapterurus. They are two in number, separated, but at the same time intimately connected to one another in the mesial plane, along the dorsal and ventral margins of the body, so as to form a continuous layer of a gelatinous consistence, closely adherent to the skin, and enclosing as in a sac the entire animal, except the head and fins. In the Malapterurus of the Nile, of which species only, dissections have hitherto been published (St Hilaire, Annales de Museum, tom I.; Rudolphi, Abhand. Berl. Akad. 1824; Valenciennes, An. des Sci. Nat., tom XVI.), a subjacent areolar, laminated, fatty layer, has been described as a second and deeper electrical apparatus; and in the Malapterurus of Western Africa, with the examination of which the lecturer is at present engaged, this deeper layer exists in the form of longitudinal streaks of fat between the muscles and gelatinous layer. Pacini, however (*sopra l'organo elettrico del Siluro elettrico del Nilo, etc.*, negli Annali delle Sci. Nat. di Bologna, 1846), has shown that this presumed deep electrical structure consists principally of fat (as it assuredly does in the species from Western Africa), and probably acts as an insulator to protect the fish from its own shocks; the electrical currents being presumed to pass from within outwards; that is, through any point on the surface of the body.

The determination of the intimate structure of the battery of Malapterurus is extremely difficult. Before Pacini, no precise description of it had been attempted. He represents the structure as consisting of octahedral cellules or alveoli, a form which in some measure explains the variable direction of the currents through the electromotor mass. Professor Ecker, in a communication contained in Siebold and Kölliker's *Zeitschrift für Wissensch. Zoologie*, July 1854, states that Dr Bilharz, at present in Egypt, is engaged in the anatomy of the Nilotic species, and that he conceives he has determined the alveoli of the electro-motor layer to be lenticular in form, with their surfaces directed forwards and backwards. He would appear to have observed that they are arranged not in antero-posterior series, but alternately; so as to constitute decussating series, and to afford in certain sections the octahedral form attributed to them by Pacini. He also states, that these lenticular alveoli consist of a fibrous membrane, covered by a very fine layer on which the nerves are disposed.

[The next lecture concludes the Anatomy, and comprehends a general sketch of the Physiologico-Electrical Principles of the Apparatus.]

I.—*Case of Aneurism of the Aorta projecting into the neck, and accompanied by Contraction of the Pupil on the affected side.* By W. T. Gairdner, M.D.

The following case was narrated, and the patient was exhibited to the Medico-Chirurgical Society of Edinburgh, as an interesting example of a pathological condition explicable by physiological laws, The experiments of Petit, considerably upwards of a century ago, demonstrated that the section of the united vagus and sympathetic nerves in the neck of the dog has a marked effect upon the pupil, and on the conjunctiva of the eye; from which he not unnaturally drew the inference, that "the intercostal (sympathetic) nerves furnish branches, which convey the spirits into the eyes."[1] Although this conclusion was a sufficiently startling one, and although Cruickshank, Dupuy, and others performed experiments tending more or less distinctly in the same direction, the first exact investigation of the subject was due to the late Dr John Reid, whose attention was attracted to it in the course of his researches on the vagus nerve, and who succeeded in proving distinctly the dependence of contraction of the pupil upon section of the sympathetic in the neck, independently of every other source of disturbance.[2] Dr Reid did not fail to anticipate for this inquiry a pathological as well as a physiological importance, and he refers to "a case described in the *Medical Gazette*,[3] where the right carotid, the vagus, and surrounding parts are described as being enveloped in a large morbid tumour, and where, consequently, the sympathetic could hardly be supposed to escape," in which "the pupil of that side is described as becoming smaller in the course of the disease." Valentin, from further experiments, and from a consideration of the whole arrangement of the nerves involved, concluded that the pupil derives its nervous supply from two sources; the nerves, which act on the radiating fibres of the iris, from the spinal system, *through the sympathetic*, and those which supply the circular fibres (or those which contract the pupil), from the inferior branch of the motor oculi nerve. The section of the sympathetic trunk in the neck, according to Valentin, paralyses the former nervous filaments, and resigns the pupil to the exclusive influence of the circular fibres, which keep it in a state of permanent contraction. The more recent experiments of Budge and Waller tend to confirm the views of Valentin, and to show that while the circular fibres are supplied from the third (oculo-motor) and also the fifth (trigeminus) cerebral nerves, the radiating fibres receive filaments from the sympathetic, which join the ophthalmic branch of the fifth after it has passed through the Casserian ganglion. Hence, stimulating the sympathetic in the neck dilates the pupil, and cutting it causes contraction of the pupil, more or less permanent. These experiments further appear to show that the whole of the sympathetic fibres which go to the pupil from the cervical ganglia, are originally derived from the anterior roots of the spinal nerves, and, consequently from the spinal cord in the lower cervical and upper dorsal region. If the spinal cord be destroyed between the fifth cervical and the sixth dorsal vertebrae, contraction of the pupils occurs. If one side only of the spinal cord be destroyed in this region (which M. M. Budge and Waller call the *regio cilio-spinalis*), or if the emerging spinal nerves or their anterior roots be cut, a similar effect is produced. Further, a consideration of the different distribution of the nerves in different animals goes far to explain the discrepancies which have been met with in former experiments.

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[1] *Histoire de l'Académie Royale des Sciences,* An. 1727.

[2] *Edinburgh Medical and Surgical Journal,* January 1841.

[3] September 29, 1838.

These investigations seem to be very clearly applicable to the explanation of the case to be presently detailed. They are mentioned here, because the subject does not seem to have attracted the attention which it deserves from physicians. At the time I introduced this patient at the Medico-Chirurgical Society, I was not aware that the occurrence of contracted pupil, as a symptom of thoracic or cervical aneurism, had ever been placed on record. I remarked, indeed, that accidental differences in the size of the two pupils were not uncommon; and that in the present, or in any other isolated case, the observation would be very apt to be disregarded, as a mere coincidence, unless the physiological explanation were present to the mind of the observer. I have, however, had my attention directed to a case of aneurism at the root of the neck, noted by Dr Walshe in the last edition of his work on *Diseases of the Lungs and Heart*, p. 759, in which one pupil was observed to be "very notably smaller than the other, where no cerebral symptom of any kind existed." Unfortunately, the state of the nervous structures in the neck does not appear to have been investigated; and I am informed that no recorded details exist, as to the position of the aneurism, sufficiently precise to allow of an accurate appreciation of its relations. The previous observation of this case, however, together with the one above noticed in the *Medical Gazette*, will, I trust, concur with the facts adduced in this communication, in fixing the attention of physicians on the state of the pupils in similar cases of disease.

Physical Signs, etc.

J. W., æt. 40, quarryman, very robust. Was seen first by me in autumn 1854. He had at that time all the signs of a considerable aneurism at the root of the neck in the left side. The expansion of the sac was chiefly above the clavicle, but there was dulness on percussion below it for about half an inch. There was no bruit—only a strong double vibrating shock; second sound natural over aorta. The circulation not interrupted either in subclavian or carotid, if anything, rather feebler in left subclavian than right. Never any oedema of left arm, but numbness and pain frequently experienced. More pain in arm than at site of tumour; considerable darting pain, too, around the back of shoulder; heat of left side of face and head, but face never seemed to flush. No evidence of hypertrophy or other disease of heart.

He did not at first ascribe his disease to any particular accident; but afterwards gave the following account of it to Dr Inglis, resident-physician:—

History. "On one occasion, two or three years ago, he recollects distinctly lifting a smith's anvil 22 stone in weight. He had a bad grip of it, and to hoist it up was obliged to rest the greater part of the weight on his left arm. He felt himself very much strained, and after completing the work he was quite blind for a time; for long after he had pain in his left side. He applied to a doctor, but got no relief. He continued at work till the day before entering the hospital, although not able to do as much as formerly. The pain of the arm going down to the fingers began about a year after the strain. He has no recollection of any later accident. For twelve months he has had difficulty of breathing on going up a hill. Never noticed that there was a swelling, until it was pointed out to him in the hospital."

Observations on Pupils. The difference in size of the pupils, as shown to the society last December, was made the subject of particular observation throughout the progress of the case. At the time of my first seeing the patient, the difference was quite as great as it ever was at any subsequent period; indeed, for a good many weeks before death it had become scarcely recognisable. Both the pupils were of small size, but the left very remarkably so, generally not more than a line in diameter, in the light. Both pupils dilated and contracted under different degrees of light, but the dilatation of the left, even in deep shadow, was very slight. This observation was made repeatedly during six weeks, during which nothing was applied calculated to affect the pupils. Once or twice, it was thought that the left conjunctiva was slightly conjested, but this cannot be stated with confidence.

Experiments with Atropine. In December several experiments were made with atropine and belladonna, of which the following are the results:—

1. The affected pupil was susceptible of dilatation under a solution of atropine placed on the conjunctiva. The dilatation was perhaps scarcely complete, but very nearly so. It did not commence, however, till about three-quarters of an hour after the atropine was applied. The dilatation continued nearly two days, and for several days more the original inequality of the pupils did not return.

2. The pupils being in the usual condition of inequality, extract of belladonna was given internally in repeated doses, till both pupils were dilated. In doing so, it was observed that throughout the experiment the left pupil continued smaller than the right.

Progress. The tumour did not undergo much enlargement till the end of the year. Considerable relief was derived from the application of freezing mixtures, although the pains were scarcely ever absent. No internal remedies were applied. Various liniments were tried, and given up in favour of the application of cold.

On December 31, in consequence of increased pain and throbbing in the tumour, local depletion by leeches was employed for the first time, and the patient was put on a very restricted scale of diet. He had always been a moderate eater, and found, as he told me, no difficulty of restraining his appetite, as the pain often took away the desire for food. For a time, too, he thought he derived benefit from this system. I allowed him to have leeches repeatedly applied, and he decidedly lost flesh and strength. The tumour, however, extended very decidedly during January and February. Freezing mixtures were continued. On February 27, 10 oz. of blood were taken from the arm, but I was not induced to repeat this experiment. By this time the local applications had lost their effect, and the pains had become greatly aggravated. Repeated doses of opium were required to procure sleep. On March 27, it is noted, that "he takes 80 minims of solution of morphia every night." About this time I observed him seated near the fire with both hands grasping the edge of a shelf almost as high above his head as he could reach. He said, that in that position the pain was somewhat alleviated. He was much weaker at this time from want of sleep and general distress, but never lost his appearance of being a strongly made muscular man.

In the course of the month of March, a number of sedatives were tried, aconite, cannabis, opium, applied by Dr Wood's method. He always begged, however, to be allowed to return to the internal use of morphia in large doses, which he found to be, on the whole, the most effectual way of procuring rest. The tumour continued to become more and more diffused, occupying a great part of the posterior triangle of the neck, but not tending at any point to become superficial. **New Symptoms.** Two new symptoms were noticed, or at least became much more distinct during this interval; slight cough, with mucous expectoration, and diminished power of motion of the fingers of the left arm, which were usually bent half-way into the palm. A little dysphagia, and slight hoarseness of voice, had been present from the first time he came under observation; and these, too, increased at this time. **Hæmoptysis.** On April 12, he expectorated a little blood. His general uneasiness, and all the chest symptoms, were likewise increased. He lay mostly in bed. **Death by Hæmorrhage.** On April 22, he brought two or three teacupfuls of arterial blood, and suddenly expired.

Post-Mortem Examination. On examination after death, an aneurism was found arising, by an opening about an inch in diameter, from the upper part of the aortic arch. The sac involved the origin of the left carotid, which vessel was slightly dilated for about three-eighths of an inch above its origin, but elsewhere normal. The left subclavian artery was normal throughout, and lay in front of the aneurismal sac at its connection with the aorta. The sac, which was irregularly oblong, and appeared to be of the size of a very large lemon, occupied the subclavian space and root of the neck on the left side, and passed deeply backwards to the 5th, 6th, and 7th cervical, and to the 1st and 2d dorsal vertebræ, with which it was in contact. In front, the deep fascia of the neck, the carotid artery, jugular vein, and pneumogastric nerve were slightly stretched over the sac, which, however, exerted its pressure in the opposite direction. The subclavian artery and vein, and the scaleni muscles were also very slightly displaced forwards and outwards, but were not adherent to the sac. The inner and back part of the tumour adhered closely to the vertebral column, and to the œsophagus; it may also have exerted slighter pressure on the trachea and the left recurrent nerve, but these did not appear to be much displaced. The lower divisions of the brachial plexus were stretched over the sac at its upper part, where it came in contact with this point of origin from the spinal column. The sympathetic nerve came in contact with the sac at the point where it passes downwards to form the ganglion in front of the vertebral artery. The bodies of the vertebræ above-mentioned were pretty deeply eroded on the left side, and the transverse processes of the 6th and 7th were absorbed to a considerable extent; the latter transverse process, indeed, had entirely disappeared. The upper surface of the first rib near its tubercle, and the corresponding transverse process on the left side, was slightly eroded. At the level of the 7th cervical vertebra, a large oval aperture of communication, nearly an inch in length, existed between the aneurismal sac and the dura mater of the cord, in consequence of the deficiency of the transverse process, with a portion of the arch and body of the 7th cervical vertebra. Opposite the diseased bones, the sac was, to a great extent, filled up with moderately firm laminated fibrinous deposit.

On examining the œsophagus, a ragged opening, about three-quarters of an inch in its long diameter, was found opposite the aneurismal sac, and communicating with it. The mucous membrane of the trachea was normal.

The stomach contained about a pint of blood.

The heart, and the greater part of the aorta were normal.

The apex of the left lung was firmly adherent to the aneurismal sac, over more than a square inch. The sac was at that point very thin. The lungs, elsewhere, were normal, as were the other organs.

The pupils were in the usual slightly dilated condition observed after death, and there was no appreciable difference between the two sides in the amount of dilatation.

The occurrence of this examination during the holidays, when my friend Dr Struthers was absent from Edinburgh, prevented my securing his co-operation in a plan which I had contemplated, of having the whole dissection conducted under his eye, and in his anatomical rooms. The interest which he took in the case during life, led me to hope that the anatomical relations of an aortic aneurism, presenting so remarkable a character as that which I pointed out in a former occasion to the Society, would receive that full and complete investigation which they deserved. As it was, the impossibility of retaining the body when not claimed for the school, and my own want of the necessary skill, have combined, I fear, to render this account of the dissection less satisfactory than was to have been desired. Still, the following facts and inferences may be regarded, I think, as fully established:—

1. The aneurism did not, as I at first supposed, involve the inner portion of the sub-clavian artery, but lay on a plane entirely behind it. This fact explains the extremely slight impediment to the circulation of the limb, whether arterial or venous.

2. The aneurism exerted its chief pressure in a direction backwards and inwards; more on the emerging roots of the spinal nerves, and their connection with the sympathetic, than on the carotid, pneumo-gastric, or recurrent. This was fully anticipated from the symptoms, and from the situation of the tumour, as I indicated in December. Since that period, however, the marked hoarseness of voice, and evidences of œsophageal pressure, show that the aneurism had, at a late period, been extending so as to involve structures originally not much affected.

3. The vertebral artery, and the sympathetic ganglion lying upon it; a portion, at least, of the brachial plexus; the anterior roots of several of the lower cervical nerves, with the branches given off by them to the sympathetic; the inferior attachments of the longus colli muscle, must have been either entirely sacrificed, or very much altered in their structure and relations. In addition to these extensive encroachments, the aneurism may have exerted a certain amount of pressure on the spinal column; and especially on that region of it described by Budge and Waller as the cilio-spinal. The localized character of the paralysis, however, and particularly the small amount of paralysis of sensation in the left arm, render it probable that the spinal cord had not been actually disorganized to any appreciable extent, and that the chief pressure of the aneurism was on the anterior roots of the spinal nerves. In these facts the symptom pointed out to the Society, the permanent contraction of the pupil, finds ample explanation.

4. It is uncertain whether the equality of the pupils, in the last few weeks of life, depended upon the assimilation of the condition of the left to that of the right, or of the right to that of the left pupil. In the latter case, it is open to question whether the contraction of both pupils was a result of interference with the cord, or of the opium which the patient took so largely as an anodyne.

Finally, it may be supposed that the equalization of the two pupils, in the latter part of the history of the case, was due to some compensating or collateral nervous influence, which had arisen to supply the deficiency caused by the pressure of the aneurism. It is certain that the dilating power of the pupil was not in this case, at least, at the time of the experiments with belladonna, destroyed, but only weakened.[1]

5. Death took place by hæmorrhage into the œsophagus, from which the stomach and a portion of the intestinal canal appear to have been filled with blood before any was ejected by vomiting. The comparatively small quantity of blood which came up with the sputum, may possibly have been hawked up from the œsophagus; but it seems more probable that it was the result of direct bleeding of the sac into the apex of the left lung. Three fatal terminations, therefore, were simultaneously impending: 1*st*, hæmorrhage into the œsophagus; 2*d*, hæmorrhage into the lung; 3*d*, pressure on the cord and paralysis. Perhaps we may also consider that serious symptoms connected with the respiration, were not far off; as the recurrent nerve and the trachea, would very soon have been involved.

I have thus attempted to indicate a new source of functional disturbance in thoracic aneurism, as connected with the interference of such tumours with the nervous system. In this point of view, the present case may be advantageously considered in connection with those which I have laid before the Society on former occasions.[1] It results from the whole series, that aneurisms of the aorta may, in virtue of their pressure on different portions of the nervous system, produce four different classes of symptoms: 1*st*, angina pectoris; 2*d*, spasmodic laryngeal dyspnœa; 3*d*, spasmodic asthma, or bronchial dyspnœa; and 4*th*, permanent contraction of the pupil on the affected side. On the important considerations connected with diagnosis and treatment involved in these four aspects of aneurismal disease, I need not now detain the Society by any further remarks.

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[1] It would appear from one of Dr Reid's experiments, that the contraction of the pupil in these cases is not absolutely permanent. "In a cat . . . the pupil was nearly natural a month after portions of the sympathetic and par vagum on one side were removed. *Loc cit, in a note.*"

[2] *Monthly Journal of Medical Science*, Aug. 1851, and Feb. 1853.

II.—*Case of Encephaloid Cancer of the right Kidney and of the Lung, Simulating Ascites, and developed at a very early age.* By Dr Thomas Balfour, Edinburgh.

[The following case was written out for publication at my request by Dr Thomas Balfour, who was kind enough to bring it under my notice in connection with the tumour removed from the body. The extremely soft consistence, and the enormous bulk of the growth, made it impossible to preserve it. The following particulars are therefore the only memorial of a case which deserves to be recorded, not only from the interest belonging to it in a pathological point of view, but also on account of the practical details. In the only other instance which has fallen under my own observation of cancerous disease below the age of puberty (a boy of seven years), the mass was attached chiefly to the liver. As in the present case, however, it filled the abdomen with a substance so soft, as to be scarcely distinguishable from fluid. It had, in fact, been perforated with a trochar, by a country surgeon, before the case came under observation in Edinburgh. The wound healed, and the progress of the disease did not seem to have been affected by the operation. The tumour weighed seventeen pounds.

Among the recorded cases of infantile cancer, only a small minority are so stated as to show that the observers fully appreciated the difficulties now so well known to exist, of distinguishing cancerous growths from those which simulate them. This remark applies particularly to the case of "scirrhus." I greatly incline, accordingly, notwithstanding a number of presumed exceptions which are recorded, to adopt the common opinion, that this form of cancer is rarely, if ever, seen in infancy. And probably even the encephaloid growth has, in early age, a peculiar softness, and corresponding rapidity of development, beyond anything witnessed in the more advanced periods of life. The cell-forms found in these two cases did not present anything which can be considered characteristic of the infantile period, unless it be the extreme delicacy of the cell-wall, and the absence of the more highly composite forms of cell. In one, the cells were mostly circular, in the other, they were elongated and fibre-like; in both, the nuclei were large and distinct. W. T. Gairdner.]

A. T. at birth was a stout child; at about three months old, was observed to be unsymmetrical, the *left* side seeming throughout its whole length to be larger than the opposite one. At ten months had an attack of rubeola, and was at the same time troubled with dentition, by which she was much weakened. She was unable to walk till she was one year and eight months old. After attaining the age of two years, she improved gradually, till she became, to all appearance, a very healthy child, and continued so till she was three years and four months old.

Early Symptoms. At this age, on coming home from a walk one day, she complained of pain in the abdomen. She got aperient medicine, and improved for about a week, after which her urine was observed to be

Hæmaturia. coloured, and the next day *pure* blood was passed on two occasions, subsequently it was passed along with the urine. Under treatment, the blood ceased entirely, and she was much better for two or three weeks, after which period the abdomen was observed to be swollen at the right hypochondrium.

Effects of Treatment. Mercury. On being put slightly under the influence of mercury, she appeared to be more lively, and the tumour seemed less. Previously to the mercury affecting the gums, she had had no desire to sit up in bed, or to play, but constantly lay on the affected side, as she experienced pain by being put on the left side, and was never satisfied until her wonted position was resumed; subsequently, however, to the action of the mercury, she sat up and played, and was able to walk about the floor, and made no complaint of pain. **Warm Bath.** Warm baths were used about three times weekly during the whole time, with manifest improvement to all the symptoms. The urine was constantly observed to be passed in larger quantity after each bath, *e. g.*, previously to getting the bath, she was sometimes passing only ʒiss. of urine at a time, but after the bath the urinary secretion would be increased to ℥vi.

Diuretics. Diuretics were also given internally, and applied externally, with marked effect, inasmuch as under the increased secretion caused by them and the baths, she sometimes passed Oiss. of urine in the twenty-four hours, and this daily amount would continue sometimes for a week at a time, and, while the kidneys were thus acting freely, the abdominal swelling diminished considerably.

Abdominal Tumour. I should have mentioned that the swelling gradually extended till the whole abdomen was greatly distended, yielding dulness on percussion in any position ; the superficial abdominal veins became very prominent, presenting the same appearance as in cases of advanced ascites.

The dyspnœa was considerable at times.

When sleeping, she used to moan occasionally, as if suffering from pain, and on awakening she almost always wept. About three weeks before death, the pain in the side, which had left after the mercury was given, seemed to return, and she would occasionally complain of it for a few minutes at a time.

During her whole illness, she had a clammy perspiration over her body, especially about the roots of the hairs of the head, which were constantly bathed in perspiration ; but she took her food well during all this time, the appetite seeming rather to improve than otherwise ; stimulants, animal food, etc., were freely allowed, gin being given as the diuretic when the pulse became weaker.

Her legs and feet became œdematous at times, and, on these occasions, her spirits were revived, and she seemed much better.

Occasionally, during her illness, she was even cheerful, and would sing and play with the rest of the family. These periods of cheerfulness would continue sometimes for a month, and for two or three weeks afterwards she would become low and dispirited.

The pulse throughout the whole period of her illness was small and weak, and her look was decidedly cachectic.

Measurements. She was frequently measured round the body, on a level with the umbilicus, and the smallest measurement was found to be 2 feet 1¼ inch, and between this and 2 feet 4¼ inches, the measurements were found to vary very much, till shortly before death, the swelling increased to 2 feet 7 inches. The disease lasted, or, I should rather say, was under treatment, about six months.

Post-Mortem Examination. On examination after death, several soft encephaloid masses, were found attached to the lower part of the right lung, beneath the pleura. The largest was the size of a walnut; their structure was the same as that presently to be noticed.

The abdomen was quite distended with a fluctuating mass, which proved to occupy the place of the right kidney, of which almost every vestige had disappeared. A great portion of this mass consisted of a milt-like juice, which pervaded in every part a soft fibrous basis, sometimes yellowish white, sometimes orange coloured, and carrying numerous very fine and delicate vessels. Abundant cell-elements were found in every part, some rounded, but the majority elongated and fibre-like, with large oval very distinct nuclei from $\frac{1}{150}$th to $\frac{1}{70}$th of a line in diameter.

III.—*Case of Traumatic Rupture of the Duodenum.* By ALEXANDER THOMSON, M.D., Edinburgh.

W. S., a healthy boy of thirteen years of age, was engaged in taking down fruit from a tree, on Monday, the 21st August 1854. In the act of reaching up, the branch on which he was standing gave way; he was precipitated with violence to the ground; he fell with his belly on the branch, which was found lying beneath him; when raised, he was insensible, and remained for a short time in this condition. In the course of the afternoon he recovered, and appeared to be perfectly well. He came up to Edinburgh from Musselburgh on foot (in the evening), went to the west end of the town to visit a relation, and next day returned to Musselburgh, making no complaint whatever. During that afternoon he was out playing with his companions on the links. His friends relate that his illness first attracted their attention on the evening of Wednesday the 23d, when he began to complain of sickness and of a pain situated immediately below the arch of the ribs on the right side. Vomiting set in late that evening, and was accompanied with a marked degree of pallor, increasing sickness, and constant desire to go to stool. The bowels had been moved without medicine early in the afternoon of Wednesday, but after that time no evacuation from the bowels took place. The case assuming a serious aspect, he was brought to Edinburgh on Friday the 25th, and placed under my care.

Symptoms. His pulse was soft, feeble, and rapid. The vomiting still continued. There was no tension of the abdomen, which was relaxed and flaccid, without the slightest tenderness to the touch. He only complained of a dull, constant pain under the right hypochondrium, at the seat of his previous injury.

Treatment. The treatment consisted of small doses of cal. and opium, ænemata, with fomentations, and the administration of wine and beef-tea. An eminent physician was called in consultation on the Sunday, August 26, who, under the apprehension that it might be a case of subacute peritonitis, recommended the application of leeches. Four were applied over the seat of pain and bled moderately. Even that small abstraction of blood appeared to be badly borne, as the patient rapidly sank, and died that night.

Sectio Cadaveris. The friends only permitted an inspection of the abdomen, in conducting which I was assisted by Dr Littlejohn. The peritoneal cavity contained a small quantity of almost colourless serum. On turning aside the bowels, which presented nothing worthy of remark, the descending portion of the duodenum was found of a brownish colour, and on its outer side there was a well-marked tumour, about the size of a turkey egg, which was at first mistaken for the kidney, but which was found, on incision, to consist of a dark coagulum of blood. The stomach was now opened, and the duodenum was carefully split along its exterior surface. At the lower part of its descending portion, just as the gut begins to pass transversely, a black coagulum of considerable firmness was seen protruding into the cavity of the intestine, and on its removal disclosed a linear rent on the outer and back wall of the duodenum fully an inch in length. On passing the finger through the aperture, it was found to lead into the cavity of the large clot, which had at first attracted notice. No blood could be discovered in the intestinal canal. The coats of the duodenum were not softened, and gave out no perceptible odour. Along the transverse portion of the gut blood had evidently been extravasated, between the mucous and peritoneal coats.

Commentary. The chief point of interest in the case is the lapse of time which intervened between the receipt of the injury and the occurrence of the more serious symptoms. It is difficult to believe that so severe an injury as rupture of any portion of the intestinal canal should for so many hours be unattended by symptoms likely to attract the attention of watchful relatives. But here we have an injury quite capable of producing the lesion in question, received on Monday; the boy able to come up to Edinburgh the same day, during this journey undergoing a great deal of fatigue, and for two and a half days making no noticeable complaint. It is probable that an explanation may be found in the peculiar site of the rupture. The resisting surface of the small clot, which protruded through the rent into the cavity of the intestine, appeared to be formed by a delicate transparent layer of cellular tissue, and it is possible that during the prolonged insensibility that followed the receipt of the accident, hæmorrhage took place into the lax cellular tissue in the immediate neighbourhood of the duodenum. A plug was thus formed, and any extravasation of fluids or digested matters, completely prevented. The peristaltic action of the intestinal canal, however, became seriously interfered with; no food was taken for five days previous to death, and during the same period the bowels never moved, the boy dying by asthenia—the result of the nature of the lesion and of the lack of nourishment.

IV.—*Case of Labour complicated with Emphysema.* By Robert Tod, Surgeon, Edinburgh.

History. On the 9th of April 1851, I was sent for about 7 P.M. to attend Mrs W., æt. 25, in labour with her first child. Upon making an examination during the pains, I found the os thin and dilated to the size of a shilling. The labour was slow and tedious—the child's face being towards the pubis. About 4 A.M., during a severe expulsive pain, when the child's head was distending the perineum, the patient suddenly exclaimed that she could not see. On examining the face, neck, and anterior part of the thorax, I found that they were completely emphysematous. Dreading the return of another pain to increase the lesion, the head, by this time, being near the outlet, I applied the forceps and delivered the child, which was a healthy female.

Symptoms and Result. Though the appearance of the emphysema alarmed the friends very much, the patient herself stated that all she felt at the time of its occurrence was a slight difficulty in breathing; and the swelling having closed her eyes, she was necessarily rendered suddenly blind, but in reality there was no danger, as, in the course of eight days, all traces of the emphysema had completely disappeared under the use of gentle laxatives. In some works on midwifery it is stated to occur only after labour, but in the present instance such was not the case.

The patient completely recovered, and I have since attended her, when she felt not the slightest inconvenience.

Part Second.

REVIEWS.

Medical Testimony and Evidence in Cases of Lunacy; being Three Croonian Lectures delivered before the Royal College of Physicians in 1853*; with an Essay on the Conditions of Mental Soundness.* By THOMAS MAYO, M.D., F.R.S., Fellow of the Royal College of Physicians, late Fellow of Oriel College, Oxford. London, 1854.

THE little volume which Dr Mayo has here given to the public, in the shape of Three Lectures, delivered before the Royal College of Surgeons, London, we regard as a seasonable and important contribution to our medical literature. Everything relating to insanity is still, as Dr M. says truly enough, but not, we think, very happily, in an "inchoate state," and these lectures relate only to one of its aspects. We have no intention to go beyond the limits which the author has prescribed to himself, or to enter into any general discussion of the disease. Subsequent opportunities may occur, which will enable us to do so more satisfactorily than we could at present. And we notice the book just now, not more to bring before our readers certain views which the author has adopted, and which he maintains with great ability, than to show our interest in a subject that has lately attracted a considerable share of attention, and the progress of which it becomes all, who seek to influence public opinion, carefully to note. And, if our remarks should seem brief and hurried, it must be ascribed to the late period at which the book came into our hands, joined to our anxiety not to let slip an opportunity of at least presenting the subject to the consideration of our readers.

The embarrassment which a medical man often feels, while giving evidence regarding a case of lunacy, proceeds partly, no doubt, from difficulties inseparable from such cases, but partly also from the different points of view from which the legal and the medical profession are accustomed to contemplate the same object. The physician groups and arranges certain phenomena so as to be able to trace them to their cause and to adjust his remedial measures.

But when he is brought into court, he finds himself dealing with parties who seek to know whether these phenomena can be compressed within or excluded from certain arbitrary definitions, or can be brought within the range of bygone precedents. From this discrepancy, inconvenience to both professions (especially to the medical) and injury to the public interest, have arisen. And it is well, therefore, that medical men should be thoroughly informed regarding the precise meaning which lawyers affix to those terms which are applied to the subjects on which they are to be examined. According to Dr Mayo, the law requires medical testimony for three different states of disease or "abnormal mind," capable of being considered separately and "distinguished from one another; lunacy or insanity, idiocy, and unsoundness of mind." These terms Dr M. accepts as laid down in Acts of Parliament, not considering them synonymous or of equal force, but expressive of real and cognizable distinctions. The exactness or propriety of these terms a medical witness is not called to discuss, there they are in the statute book, and the person of whom we predicate them, in the sense in which the law uses them, which sense is gathered from the dicta of judges and the decisions of courts, becomes liable to civil disabilities, or may be exempted from penal consequences. These decisions, dealing with the most subtle and impalpable subjects which we can consider, and involving often, or rather always, questions of great interest both to society and individuals, are unfortunately, in some cases obscure, when viewed in reference to the principles on which they are supposed to rest; and in some cases, not altogether reconcilable one with another; and the same remark applies, even more strongly, to the views inculcated by medical authorities. It would be a useful and important task to collect carefully the cases in which any particular form of insanity has been brought under legal review, to find exactly what facts had been clearly established regarding it, and thence to deduce a principle or rule of guidance; for such a task, laborious investigation would be necessary, nor have we at present the means of undertaking it; we must content ourselves with the less ambitious task of attending to some of Dr Mayo's remarks on medical evidence; and, in doing so, as we cannot consider the cases he refers to fully or compare them with others, we shall refrain from noticing them altogether.

The first lecture need not detain us very long, it is not there that his most important views are developed. In considering insanity, he regards delirium, according to the description of Cullen and Pinel, as its constituting essence, or at least its discriminating test. Now, delirium, as described by these authorities, manifests its existence either by incoherency or by illusions; there is a want of power to control, or guide, or direct the faculty of attention, in consequence of which the thoughts become more or less completely irregular or inconsecutive in their order and succession; it is true, as Dr M. observes, we cannot, at our mere bidding, summon a given thought into our mind, but we can, as Dugald Stuart remarks, by an act of the will give such a direction to the associating or suggesting principle as may secure the presence of a certain class of thoughts. And this power of voluntary attention, we would venture to remark in addition, while it is one of the chief features of a healthy and vigorous mind, and perhaps the point on which the superiority of one man over another chiefly depends, seems to be the power primarily disordered or subverted in insane delirium; perhaps, were the existence of delusions, either connected with the objects of the senses or the perceptions of the mind, they might be traced to the want of its controlling authority. But we must waive any metaphysical discussion for the present, and content ourselves with stating that incoherency or inconsecutiveness of thought, either as exhibited in the speech or observed in the conduct, forms one phase of what Dr M. terms insane delirium, and the presence of delusions either regarding the objects of the senses or the perceptions of the mind, another. To the former class Dr M. gives the name of "objective," to the latter "notional" delusions.

Into the pathology of this state Dr M. does not enter, he merely suggests the analogy that exists between intoxication and insanity, and the possibility of disease affecting the mind alone, independently of the body, as a separate immaterial unity. In cases that are the subject of legal examination, where there is either general incoherence or "objective delusion," there is not ordinarily much room for doubt in pronouncing an opinion. But in "notional delusions," he admits the exceeding difficulty of finding any test which can distinguish some of them from other delusions which never could be pronounced insane or delusions of lunacy, according to the meaning which these terms practically and legally convey; he advises us "to endeavour to make each of these elements (namely inconsecutiveness and delusion) throw light upon one another," to attend carefully to the evidence of unreasonable conduct as auxiliary, and mentions the difficulty which insane persons have in committing their thoughts to paper with any coherence, but he offers little in the shape of positive suggestion to help a medical witness over the perplexities such cases present. In discussing the subject of a "lucid interval," as it is called, Dr M. seems to think that, in civil cases, the law holds that "a rational act, rationally done," *e. g.*, a natural and proper will, clearly expressed proves, *ipso facto*, the existence of this state, though the person performing the act were palpably insane up to the moment of its performance, and insane immediately after it was finished. The amount of understanding with which a person is naturally endowed, which is required to perform civil acts, *i. e.*, to dispose of property, seems fixed very fairly by a decision of the Privy Council, where it is said, "In order to constitute a sound disponing mind, a testator must not only be able to understand that he is by his will giving the whole of his property, but also, he must have capacity to understand the extent of his property, and the nature of the claims of those whom, by his will, he may be excluding from all participation in that property."

And with equal distinctness and clearness, the amount of understanding necessary to establish criminal responsibility, has been defined to be a capacity to understand the meaning of the law, and to know when a person acts contrary to it. This dictum, inferring the extreme penalty of the law in many cases to which it clearly applies, and yet where the sympathies of the public do not sanction it, has produced a state of matters anomalous and injurious both to the efficiency of the law and the well-being of society, to which the theories of medical witnesses and writers are said to have largely contributed. And this brings us to the real gist of Dr Mayo's book, his " Views of the Responsibility of the Insane," and the propriety of " subjecting them, for certain crimes, to some form of secondary punishment," proportioned to a partial responsibility; next, the unsound and " mischievous character of some doctrines suggested by the term moral insanity; and, lastly, the propriety of examining a party whose mental state is inquired into before the jury and the court. We have placed the conclusions at which Dr Mayo arrives in somewhat of a different order from what he has assigned them at the beginning of his book; the one which we have stated first, occupying, in his arrangement, the second place. But this is a matter of little consequence, as it is not easy to discuss the two separately, and, in point of fact, the latter part of the first lecture, at which we have now arrived, contains a statement of his views on this part of the subject, in which he comments very strongly, and, we think, very justly, on certain opinions of Dr Rae, to the effect that no conviction for a crime committed during a lucid interval, should ever take place; a position which Dr M. shows would absolve from all responsibility every insane person who received merely a temporary cure, that is, whose illness ever recurred. Indeed, on Dr Rae's principle, that sudden excitement reproduces *pro tempore*, the pathological condition of the brain on which insanity depends, and which, according to him, absolves from legal consequences, we do not very well see how a person who had once been insane could ever be considered afterwards responsible at all, at least for any crime committed under sudden impulse: an inference rather more sweeping, we suspect, than even the zealous advocates of moral or instinctive insanity, would be inclined to adopt. Dr M. brings out very clearly and well the injurious discrepancy that exists between the letter of the law, as contained in the dicta of our judges, and the practice of it in the acquittal of partially insane criminals, and thinks he finds the source of this " in the nature of our criminal code, which recognises no punishment for the offences of the insane, and forces the court to visit them with the same penal infliction as would apply to the same acts committed by the sane, their derangement being ignored, or to let them pass unpunished, however partially responsible they may be;" he argues, that for all the beneficial purposes of punishment, confinement in an asylum is useless, being neither regarded by the sufferer nor the public as penal, feeding the vanity or gratifying the indolence of some lunatics, and utterly useless as an example "to persons of actually diseased mind, or to that large class of persons who are drifting into disease from uncontrolled eccentricity;" and he argues, with apparent plausibility, that the partially insane at large in society cannot be altogether insensible to those feelings by the agency of which order is preserved and recovery rendered possible in an asylum, and though he admits the difficulties of applying to the insane the doctrine of a conditional or partial responsibility, these cannot be absolutely insurmountable, seeing the thing is actually done in France. *How* it ought to be done it is needless to consider now, there will be plenty of time for that, for every change in English law, especially in the way of improvement, is sure to be accomplished with sufficient deliberation to give us time to say and to hear, over and over again, all that can be possibly said or heard about it. We have given a condensed, but we hope a faithful, abstract of Dr M.'s views on this subject, leaving out his account of cases, and without pronouncing positively on their justice, we would say that they are at least deserving of serious and most respectful consideration, as the opinions of a very experienced and thoughtful man. Let us now accompany him in his remarks on moral insanity.

Dr Mayo, we have seen, holds delirium, either in the shape of positive delusion or inconsecutiveness, as the essential condition and only proof of insanity. But certain writers, whose speculations have acquired a wide celebrity and exercised considerable influence, have sought to establish a species of insanity, or to include under that name cases in which there is no delusion, no disordered perception, no aberration of the understanding, but merely an irresistible tendency to perpetrate crime, for example, to commit murder; and the important question arises, are such views tenable or ought they to be received? Certainly not, without the fullest and most convincing evidence. And, as certainly, the *onus probandi* lies upon the party seeking to establish the affirmative side of the question. The insanity, according to them, is inferred or made out constructively from the very act, and that even though there be no delusion existing in the man's character or necessarily involved in the deed itself. If a wild and reckless desire to shed blood is to be admitted as evidence of insanity, and the very crime itself is to become the proof of the perpetrators irresponsibility, how is the distinction between guilt and madness to be maintained, or by what characters are they to be discriminated? It is certainly the duty of those who hold such views to answer these questions clearly and unequivocally. Dr Mayo remarks, that the introduction of such opinions overturns an accredited distinction, which assigns intellectual lesion as a characteristic of madness, and this is quite true. Every act of our life, and every emotion of our heart (which is an inward act), is based upon or indissolubly associated with some intellectual process, some belief or perception of relations; but when we are told that these latter may remain perfectly sound, and yet the former, which are consequent upon them, become insane, we seem to feel as if the meaning of our ordinary language, when speaking of the mind, were inverted, and violence done to our ordinary, perhaps we might say our intuitive, convictions of the nature of our own minds, and our sentiments about right and wrong, the nearest and most intimate, the clearest and most determinate we possess were in danger of being subverted. It would be very desirable, as we intimated before, to have every case of this description minutely detailed and carefully analyzed, and see the result. Dr Mayo's examination of certain cases, mentioned by Pinel and Dr Pritchard, is acute, and, we think, satisfactory; in most of them he finds sufficient proof of the existence, or at least the probability, of what he considers the old and the true test of insanity, delirium. Others of them he places unequivocally in the category of guilt. A certain class of cases he refers to a low moral tone, joined to a temperament analogous to the hysterical. This last is an important remark, and might perhaps be extended. A great part of our probation consists in the regulation of our passions, and for this purpose reason and the moral sense have been given to us, but if we allow our imaginations constantly and habitually to dwell either on sensual indulgence or the gratification of resentful passion, we shall gradually find ourselves impelled by a force, which our own want of moral discipline has allowed to become too strong for our control, either into some sudden crime or into a course of conduct the climax of which may be some crime, which, though to outward seeming almost motiveless, may be in fact the result, and may be regarded as the exponent, of a long course of inward vice; such seems to have been the case, with at least one of the unhappy victims of what is called moral insanity, and, could we trace their history, might be true of more. But if such characters are to be allowed to plead insanity in lieu of punishment, we shall soon have the claimants for its immunities more numerous than we look for or desire. Dr M. cautions medical witnesses, in his first lecture, against confounding the question is A. insane? with the different and further question is A. responsible? There can be little doubt that the anxiety to establish the claims of "moral insanity" originated in the humane desire to mitigate the rigour of a stern code of law, and to save from the last fearful penalty parties whom the law condemned, but whom the moral sympathies of the human heart pronounced undeserving of such a sentence. But let us beware lest the humane effort be overdone, the benevolent hypothesis born out of due time. The age when a cruel code would be harshly carried out, has gone by. And continued efforts to soften its rigour may lead us into the other extreme. It is a profound remark of Dr Arnold, and equally true of social as of political movements, that when the human mind, roused to the existence of an evil or the imminence of a danger on one side, addresses itself strongly to remedy the evil or avert the danger, it frequently continues its efforts, not only till these are removed or obviated, but till evil or danger is incurred by going too far in the opposite direction.

The legal mind of England, though characterized by many of the highest and noblest qualities, is also distinguished by unyielding pertinacity, and a morbid horror of change. It also admits with dangerous facility, the doctrine of legal fictions, and from these combined, we believe juries especially, and even the courts, unconsciously perhaps, have been led to avail themselves of what are little better than evasions to escape from a painful dilemma.[1] We do not believe that medical hypotheses spread so fast, or take so strong a hold of the popular mind, as Dr M. supposes, when he ascribes certain verdicts in 1846 to a medical theory broached in 1842. The truth we take to be this. Some of the ablest and best men in England laboured hard and perseveringly, in the last generation, to improve and mitigate our criminal jurisprudence; their views now pervade our population and influence the class from which juries are selected, but diffused by visionary thinkers, and not unfrequently coupled with crude theories, and pushed to exaggerated conclusions, and hence the eagerness to take advantage of any pretext which legal or medical ingenuity can suggest to procure an acquittal, even though that pretext involve a theory that is scarcely understood.

We must now draw to a close these remarks, and in passing to the third lecture we would remind our readers that what we have written applies to that state of mind which, in legal phraseology, is designated insanity, and which Dr Mayo infers, and quite correctly, as appears to us, the law intends to distinguish from idiotcy, and from mere unsoundness of mind, a term which he regards as meant to discriminate those cases chiefly of mere incompetence which cannot strictly be designated either cases of insanity or idiotcy; before offering our very few observations on it, and on the short essay on mental soundness which he has appended to the lectures, we would suggest a single observation of a verbal nature merely. Dr Mayo considers delirium as the characteristic of insanity, but it is delirium as defined and described by medical writers, it is not a legal term, and having a popular signification, somewhat differing from that which our author and the writers he follows affix to it; the use of it in a court of law might give rise to that misunderstanding which we adverted to in the beginning of this article. Finally, let Dr Mayo, and authors on madness generally, ponder well the pregnant apothegm of Dr Cullen, "Mania always implies hurry."

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[1] Lawyers have not been slow to animadvert on the unsatisfactory nature of medical testimony and distinctions, but our legal authorities themselves are not beyond criticism. The subject is perhaps too grave for jesting, but we cannot help being reminded, in reading some legal opinions, both of counsel and judges, of a conjugal dialogue between the respected Godfrey Bertram, Esq. of Ellangowan, and his spouse. "My dear," says the lady, in answer to some dictum of her lord, "that sounds very like nonsense."—"Very likely," rejoins that distinguished legal functionary; "very likely, my dear, but it may be excellent law for all that."

As insanity implies perversion of the understanding, idiotcy designates defect of it mostly congenital, though sometimes otherwise, and the same difficulties that are experienced in framing a definition which shall include all cases of insanity, and include nothing more, beset us when we come to deal with this form of abnormal mind. Dr Mayo quotes, with great praise, Dr Taylor's pithy remark, that "by attempting to make a very close distinction between the better classes of imbeciles and those who are reputed sane, one half of the world might reason itself into the right of confining the other half," and candidly says, that each case, as it arises, must be dealt with on its own merits. And we imagine the same remark will apply to those cases which do neither fall properly under the head of insanity or idiotcy, and which, according to Dr M., the law intends to designate by the term "unsoundness of mind. An unsound person, he says, "talks with sufficient fluency, and without anything remarkable in the sequence of his thoughts. But on every subject of business his mind goes into a state of confusion of which he is not conscious. He is unable to appreciate value, and, though fond of property, will purchase and part with it at absurd prices. He can believe anything that is told him, and if he takes a dislike, can invent or believe any fiction that falls in with his feelings of resentment. I may add, that his conversation being on the whole continuous and coherent, there is a nervous flighty character in it, and often some deficiency of articulation."

In illustration, he describes several cases which we cannot quote, on which, indeed, we do not wish to enter, without, as we said before, an opportunity of analyzing all the cases recorded of this or any particular form of mental disease. From a consideration of these, especially the last, which was a criminal case, he strongly, and we think properly, contends for the examination before the court of every individual in whose favour the plea of mental unsoundness is set up. After quoting a passage from Jeremy Bentham, marked alike by that writer's bold but one-sided thinking, and by his usual bitterness of implication, he says, "but if the principle of non-responsion is thus generally noxious, when allowed to the supposed criminal under ordinary circumstances, it becomes peculiarly subversive of the legitimate purpose of justice, when it is applied to the case of one in whose behalf the plea of insanity or unsoundness of mind is set up. Whatever grounds exist for an examination of a lunatic, in presence of the judge in civil cases, exist equally with regard to the same person viewed as a delinquent; in the latter case, the attainment of truth is far more requisite to the protection of the public, as well as the individual, than the former, while in cases of supposed lunacy, passion and feeling are peculiarly liable to shade the truth unless the strongest light of evidence be thrown on it."

In concluding this lecture, Dr M. asks the question, "Whether a state of the human mind is not conceivable which shall bear the same relation to the moral sense as idiotcy does to the intellect?" Now, on this we simply offer one remark, that the capacity to perceive relations truly, being granted, the disregarding them or acting contrary to them in moral matters, implies guilt. This would lead us by a very natural progression to consider Dr M.'s essay on mental soundness, but we must have done, our space is exhausted; nor, though the essay is a good one, is there much in it to detain us. We recommend it to the careful perusal of our readers, as containing, on the whole, just views and useful remarks, though there may be some things in it to which exception might be taken; and on this subject we would venture to recommend the little tract on the "Discipline and Culture of the Mind," by our late distinguished townsman Dr Abercrombie, and certain chapters in his "Philosophy of the Moral Feelings." The whole book, indeed, especially the latter part of it, well deserves most attentive reading. We now take leave of Dr Mayo, and we do so with high respect; his work is able, thoughtful, carefully prepared, and written with a full knowledge of the subject he discusses. We cannot say, however, that he is a very clear writer; there is a want of simplicity and unity in his sentences, and he discusses a subject partially, drops it, and resumes it again in a way that renders it difficult to follow him and gather his full meaning, even when that meaning is true, important, and well reasoned out. The book is also well timed; medical men have lost the superstitious prestige with which Dr Gooch (we think) declared they were at one time invested by public opinion. And as the mind generally passes from one extreme to another, and as the enlightened English public specially rejoices, when it has blundered in one direction, to set things to rights by blundering again as far in the opposite direction, they are now in danger of losing the influence to which, from their talent, their learning, and their moral worth, they are legitimately and most justly entitled; and if this has been in any measure due to crude views and contradictory statements on the subject we have been discussing, nothing could be better in the shape of a corrective or antidote than the excellent little book which we now close.

Theory of the Influence exerted by the Mind over the Body, in the Production and Removal of Morbid and Anomalous Conditions of the Animal Economy. By JOHN GLEN, M.A. The Bulwer Lytton Prize Essay. Edinburgh, 1855. 12mo. Pp. 76.

WE have no doubt that many of our readers, especially the practical men amongst them, if they chanced to take up this book, would throw it aside at once, as presenting nothing but unintelligible speculation and metaphysical subtilties. Nevertheless, we recommend such readers to give the author another trial—another cast for their approbation. We ourselves are grateful to Sir E. Bulwer Lytton for having, by the offer of a medal, called forth from among the young spirits of our medical school a work of this bold character. We feel satisfied that this little book embodies the germs of great truths.

The book has rather a forbidding aspect; but, in excuse for this, a great deal might be said—and, indeed, we are not sure if, in any other form whatever, so much could have been packed into so small a space. We proceed, in the first place, to give our readers some notion of what we conceive to be the scope of the work—less in the peculiar mode which the author has adopted than in what we take to be the essential spirit of his views.

We apprehend the very basis of our author's view lies in the proposition—probably nowhere expressly stated by him—*that man cannot merely vegetate; that his nutritive system, for its perfect maintenance, requires the reflex effects of animal acts.* As a mere principle of arrangement of the subjects of physiology, the division of the functions into vegetative, and animal or relative, is so clear and intelligible, that we are apt to run away with the idea, that the exercise of the animal functions is not in any respect conducive physiologically to the support of life, or the maintenance of health. The vegetative functions, including the reproductive—or that part of animal nature correspondent to the whole of vegetable life—are, indeed, the acts on which the direct continuance of the life of the individual, and of the species, essentially depends, while it cannot be said that any one of the peculiar functions of animal life, falling under sense, thought, and locomotion, is immediately necessary to life. Nevertheless, to leave out of view the effect of the animal functions, on the part of at least some members of the community, to provide shelter and food, we are to consider whether an individual man can continue to live and enjoy health, if the functions which give him rank as a locomotive and spiritual being be reduced to repose—in short, can he vegetate? Can he live in health without a due succession of locomotive acts, of feelings, emotions, and desires? There can be little doubt, we think, that a total repose of locomotive action, and other of the states of consciousness, is incompatible with the continuance of vegetative life, or at least of vegetative health, for any considerable period.

The organs concerned in the animal or relative functions constitute a very large proportion of the mass of the body, while the vegetative system is equally concerned in the growth, development, and maintenance of these, as in the growth, development, and maintenance of the organs directly employed in nutrition—it follows that, by the repose of the organs of the relative functions, or of any considerable portion of them, a great part of the action of the vegetative system is interrupted, it being remembered that the nutrition of organs fails, in proportion as their ordinary activity of function ceases. But the stoppage of the ordinary process of nutrition, in a large proportion of the solids of the body, cannot but be succeeded by extensive derangement, whether that arise from a stagnation within the system of the unexpended nutriment, from the excessive deposit of it in parts where it is not required, or from its running into new preternatural compounds, be these organic or merely chemical.

It may be safely assumed, then, that the exercise of animal acts in the individual is essential to the perfection of health, though the minimum of the animal life requisite for the full development of the vegetative life, is a problem still waiting for solution. We cannot take time at present to consider the history of the recorded authentic cases of idiocy, dementia, and senile vegetativeness, which bear on this inquiry—we must content ourselves, therefore, with the general fact, that there must be such a minimum.

The next proposition we have to make as illustrative of our author's views is, *that for the health of the vegetative system there must be a due balance in the exercise of at least some of the great acts of man's locomotive and spiritual nature.* Under a full exertion of the locomotive system, accompanied with a corresponding supply of food, the general health of the body improves; though even to this there is a limit exemplified in the danger to health threatened by an excess of the athletic habit. Still more directly, however, does the health suffer, if the exertion of the locomotive powers be greater than nutrition can keep pace with. In short, nothing is more clearly established than the possibility of breaking down the health by excessive bodily exertion, be the supply of aliment what it may. Again, what so often undermines the health as the overstraining the powers of the understanding? What so often as the indulgence in excessive emotion of one kind? What so often as exposure to the violence of particular passions? In all these cases there is a deviation from the due balance required for perfect nutrition in the exercise of animal acts.

Such, then, are the propositions, which we regard as the key to our author's system. But it is time that we should allow him to speak for himself.

The work consists of a PREFACE; a chapter entitled PROTHESIS, or Marking out the Ground; a second chapter, entitled HYPOTHESIS; a third chapter entitled THESIS; and a CONCLUSION. From the preface we shall extract one or two passages at the end of this article. In the meantime, we quote the following passage from the first chapter, or PROTHESIS:—

> "The motive which, during the subsequent investigations, will enliven, and direct, and limit our energies, is the wish, so eloquently expressed by Sir E. Bulwer Lytton, to unite more closely the correlative, yet often dissevered, pursuits of psychology and physiology. This earnest longing to reconcile the respective labourers in either field of knowledge to the results of labour in the other, has appeared simultaneously in the more eminent votaries of both pursuits.
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> "Thus, in the Lectures on Natural History, delivered by him in the summer

session of 1853, the eminent Professor of Anatomy in the University of Edinburgh developed his doctrine of the 'Psychical relations of Man to the Brute Creation,' in a manner which proved his profound sympathy and his thorough acquaintance with philosophical writers. And Sir Benjamin Brodie, whose talents have been so conspicuous in the advancement of *medical* science, has lately shown, by the publication of 'Psychological Inquiries,' that he does not disdain, amidst the glory of professional eminence, to cultivate, as did the noble Tusculan, the muses of philosophy. From the opposite, but not unfriendly ranks, there has appeared the great defender of the common sense philosophy, who has crowned his other honours (and they are not few) by a European reputation for an acquaintance with physiology. And of Mr Morell, the most recent of our English writers on philosophy, it is reported that he will, in no long time, publish some curious investigations on the Union of Soul and Body.

"But the motive, thus shared by us with more illustrious men, is restricted to a definite aim, by our adopting the theme proposed by Sir Edward Bulwer—so that many questions which the same motive might prompt the reader to remember and put forth for solution must be laid aside."

From the second chapter, or HYPOTHESIS, we extract the following passages:—

"While every part of a man's body is within reach of his mind's influence, yet every part is *not* subject to every manifestation of his mind.

"With reference to this statement, it is evident that, in certain mental phases, every part is not 'equally' subject. Upon this fact depends the possibility of physiognomical observations; for if the influence of envy, fear hatred, or love, were unlimited, no *points determinative* of the passion could be seized. But now it is certain that different portions of the body respond, at least more than others, to special phases of mind. The intelligence which gives colour to the eye and beauty to the face, will leave the 'phalanges' of both extremities unaltered, and the abdominal viscera unaffected. But the emotion of *fear* will quickly prove these latter members not invulnerable to spiritual influence, while every finger is nerved by the thrill of passion. Thus it appears that every part is not equally subject to the same mental influence.

"We are, however, prepared to go further, and to maintain, as the leading proposition in this chapter, that 'there are three tissues composing the human body, which, being physiologically distinct, may be shown—in as far as they are influenced by mind—to be influenced by distinct principles of the mind, and not indifferently by them all.' If, however, the principles, which are undoubtedly distinguishable, should be developed, as frequently they are, *in union*, then the tissues, each corresponding to its master principle, will likewise appear in complex relation.'

The passage in the above quotation, "Upon this fact depends the possibility of physiognomical observations; for if the influence of envy, fear, hatred, or love, were unlimited, no points determinative of the passion could be seized," is either obscure or unnecessary. Every part of a man's body may be equally subject to the mind's influence, and yet not subject in the same precise manner to that influence. What our author plainly means to say is, that there would be no room for physiognomical observations, if envy, fear, hatred, and love, had had each exactly the same influence upon the bodily frame. But this is too minute criticism.

In the chapter, entitled, *Hypothesis*, our author has introduced two reports, one entitled "Preliminary Report on the Soul;" the other entitled, "Preliminary Report on the Body." From the first of these reports, we extract the following passages:—

"That the soul is a unit, and not a sum, has been the innate conviction of every self-conscious man, and the fundamental basis of all true metaphysics.[1]

"But if the soul be unity in substance, its manifestations are many in number, and manifold in character; and although, when viewed from the central point of the ich by the practised eye of the metaphysician, these manifestations do arrange themselves in groups, yet some groups are found refractory to further generalisation, and demand to be regarded as distinct. These ultimate groups of phenomena may be stated in the words of Sir William Hamilton:—[2]

"'Taking a survey of the mental phenomena discovered by consciousness, we find that they may be ranged under three great classes.

"'First—Phenomena of knowledge.

"'Second—Phenomena of feeling, *i.e.* of pleasure and pain.

"'Third—Phenomena of will and conation.

"'Thus, *ex. gr.*, we approach a picture, and become, *first*, conscious of perceiving a certain complement of colours and forms: this is cognition. But further, and *secondly*, certain feelings may be excited of unalloyed gratification if it be a masterpiece, or of a more mingled character, if it be of indifferent merit. While, *thirdly*, these feelings may be succeeded by a growing desire to become possessor of the picture; and, as consummation of the desire, there is formed a will that so it shall be.'"

After some illustrations of these passages, we come to the following observations:—

"There are, then, three ultimate principles in mind; and cognition, feeling, and conation are the terms describing each respectively—in as far as it is conceived existing apart from the others.

"But we remark, 2°. That in adult life, when mind is more mature, the phenomena which we generally witness, are 'combinations,' and (so to speak) '*fusions*' of the principles, and not the bare disjunct principles themselves. In the lower animals, no doubt, and in the first stages of childhood, and in the imbecile wards of our lunatic asylums, we often witness what is only bare perception, momentary feeling, and instinctive effort; but among robust and rational men, we find perception to be blended with feeling or will—feeling also to be united with intelligence or will—and the volitional element to be *not* apart from one or other of its complementary principles.

"The following tabular view will suffice to show how the three elements are respectively affected by the subordinate admixture of the complements:—

"I. Intelligence, which is in its essence PERCEPTION, becomes sentiment when controlling *feeling*, and attention when controlling *will*.

"II. Feeling, which is in its essence SENSATION, becomes emotion when controlling *intelligence*, and desire when controlling *will*.

"III. Will, which is in its essence EFFORT, becomes appetite when controlling *feeling*, and purpose when controlling *intelligence*.

"There are thus six classes of 'binary compounds.' A few words of comment on each may be allowed.

"(*a.*) Sentiment is the name generally employed to denote the 'feeling' of admiration, wonder, awe, and the like phenomena, which feminine and romantic characters often manifest. Men of pure intelligence, whether this be developed in a scientific or mathematical direction, are apt to despise sentiment as weak, and the sentimental as effeminate. On the other hand, the sentimentalist (under cover of some great poetic name) congratulates himself, and laments the mathematician's 'deadness' to the beauty of nature.

"(*b*) In attention, the will is *drawn away*, and mastered by some object fascinating to the intelligence. In extreme cases, we may be fully conscious of our position—we may perceive its danger, but we cannot will—for our attention is riveted. It is found, accordingly, that the 'attentive' boy who, at school, by docility and natural intelligence, maintains the foremost place, may be sadly overturned in after life, where sterner purpose and a more independent will are required.

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[1] *Ferrier's Institutes of Metaphysic*, pp. 264-265.

[2] *Lectures on Metaphysics.*

"(*c*.) In emotions, the intelligence is tasked to supply food to the feelings, which it ennobles from the grade of 'sensations' to the rank of joys and sorrows. Dr Chalmers in his *Moral Philosophy* has shown admirably that, if the cause of grief be correctly represented before the mind, emotions will spontaneously arise.

"(*d*.) Again, in desire, the feelings play the major part, and give origin to inclination, so that the will is proportioned to the intensity of the sensation.

"(*e*.) On the contrary, in appetite, the objective element (the will to obtain an object) is more powerful, so that only in proportion to the appetite will be the sensation felt.

"(*f*.) In purpose, the will commands the intellect, permitting no 'discursive' flights or aimless reveries, but advancing straight. The intelligence, therefore, plays the part of a subordinate, defining the position of the object which the will claims for itself, and suggesting the probably successful means."

* * * * *

"But observe, lastly, that the phenomena of the binary order, as they appear in individuals, are conditioned by some other elements of character. These are mentioned by Dr Thomas Reid (in the *Active Powers*, 570, 578), under the names of opinion, disposition, and passion (passion being, in this application, equivalent to provoked affections), and are notoriously powerful in LIMITING purposes to that which is believed possible—emotions to that which is felt to be 'good, *i.e.* agreeable,' and attention to that which is regarded as attractive. These deeply-rooted elements, which thus control the minor operations of the soul, appear respectively (when in action) to furnish the well-known phenomena of faith, hope, and love, with their antitheses, distrust, despair, and hatred.

"Now, if we examine these phenomena, they are revealed to be '*ternary* compounds,' *i.e.* complete fusions of the principles which we have already recognised in their distinctness. In faith, there are invariably combined an inclination of confidence; 2°. A feeling of assurance; and, 3°. A perception of certainty. In hope, there are united a perception of good, a feeling of contentment, and an inclination of the will. In love there is a beholding of the attractive object, a feeling of complacency, and a 'benevolence' of the will. In the first the intelligence, in the second feeling, and in the third will, gives each its own predominating hue to the compound fusion; but, in all, the fusion exists so perfectly, that the principles lose their distinctiveness, and represent by their union the unity of the soul."

We sum up the quotations from the report on the soul, with the following retrospect:—

"1. There are three principles in mind DEVELOPED at different periods in the life of individuals and nations, but always coexisting and mutually determinative.

"2. Though sometimes detected in the absence of the others, each principle is more generally witnessed in combination (either as major or minor term) with another principle.

"3. In the most energetic and vital acts they lose their distinctiveness and coalesce, as do the luminous actinic and calorific rays in the pure solar beam."

The following passages we take from our author's report on the body, in the same chapter:—

"During life, the unity of the body is intuitively felt by all men; and though not understood, is yet acknowledged by the wisest physicians.

"But after death there are disclosed, upon dissection, numberless phenomena, which the science of anatomy attempts to comprehend, and has indeed reduced to systems, but not to unity.

"Accordingly, the student, approaching what is technically called a subject, for the purposes of examination, discovers three compartments, (*a*) the abdomen, (*b*) the thorax, (*c*) the cranium, which are distinguished—

"1st, By their SIZE, which decreases in the order specified;—

"2d, By their WALLS, which become more osseous in the order specified;—and,

"3d, By their CONTENTS, which become more homogeneous in the order specified, and more readily suggest the idea of a centre. Thus, in the cranium, he at once detects the brain, the 'rendezvous' of nervous filaments, from every part of the body; in the thorax he detects the heart, the obvious centre of the vascular and pulmonary system, but not so clearly the centre of the muscular, with which, nevertheless, it is structurally connected; in the abdomen he detects a congeries of organs, which appear irreducible to simple arrangement, and do not even present a special element of structure like the muscular fibre or the nerve-tube.

"In these circumstances, the aid of an embryologist is obtained, and from him we learn that 'in watching the development of the germ (which, invisible at first to the naked eye, is ultimately fostered into that which we call 'the body'), the microscopist observes three primary membranes—the mucous, the vascular, and the serous.' He adds that, 'from and in connection with the mucous membrane is developed skin, alimentary canal, and the various glands (salivary, hepatic, pancreatic) which furnish secretions;' 2°. 'That from and in connection with the vascular membrane are developed the vessels with the heart and muscles;' and, 3°. That 'from and in connection with the serous membrane is developed the nervous system.'"

* * * * *

"On again applying to the microscopist for information, the student learns that the three structures do admit of further analysis.

"1°. The mucous membrane consists essentially of an amorphous basement membrane, having on the one side a plexus, more or less dense, of capillaries; and on the other, a layer or layers of nucleated cells.

"2°. The muscular structure consists essentially of an amorphous membrane (sarcolemma), having on the one side a plexus, more or less dense, of capillaries; and on the other, a fasciculus of contractile filaments, solid and fibrous.

"3°. The nervous structure consists essentially of an amorphous membrane (neurilemma), on one side of which is a plexus, more or less dense, of capillaries; and on the inner side, bundles of parallel tubules, full of an oleo-albuminous matter.

"Thus, omitting the two elements which are common to them all, we find that the distinctive elements of the three formations are, respectively, the tube, the fibre, and the cell. These severally differ in their *functions* and *conditions of development*."

After remarking that in the acts of nutrition, motion, and perception, the three elements, cell, fibre, and nerve-tube, concur to produce the final result, while in the first process, there is a preponderance of secretion, in the second of contraction, and in the third of the functions of innervation, without, however, the possibility of assigning to each its precise share in these processes, our author gives the following retrospect of his report on the body:—

"1*st*, The body is composed of three tissues, which are distinguished by the ultimate organic forms connected with them respectively—namely, the cell, the fibre, and the nerve-tube; and also by the different dynamic agencies, which are most powerful in exciting or checking their development, namely, heat, electricity, and the nervous force.

"2*d*, The membranous tissues are intimately united in the bodily structure, are mutually affected by the action excited in any one tissue, and are closely combined in the processes which distinguish vitality."

And the conclusion he comes to at the end of this chapter, is, that the mind acts upon the body through the intervention of the effect of its three great principles on a corresponding corporeal structure, namely, that intelligence exalts the activity of the nervous structure, while by a negation of intelligence, a failure of power is produced; that feeling incites the process of secretion, while apathy has an opposite effect; that effort invigorates, and inaction debilitates the tone of the muscular system.

From the next chapter, entitled, "Thesis," we extract the following paragraphs, as showing our author's system in a more connected form:—

"I. Love, Hope, and Confidence (the most vital acts of the soul) are the influences most powerful in maintaining and in restoring health of body; health being marked, not by exuberance of *glee*, but by vigorous nutrition, motion, and innervation, and by resistance to morbific exciting causes.

"II. Suppression of love, hope, and confidence, *if complete*, is FATAL, and, if *chronic*, is most powerful in checking the vigour of the bodily functions, and in diminishing the resistance of the vital powers to morbific exciting causes.

"III. Inordinate continuance of attention, emotion, and other "binary compounds," will be injurious by exposing the structure, which is unstimulated by mind to the reflex action of the other tissues, and to external exciting causes of disease.

"IV. The isolated exercise of ONE principle will be injurious, by exposing the unstimulated structures to external influences, and to the physical reflex action of the force developed in the structure which is stimulated by the mind."

It may perhaps occur to our readers that we have not yet succeeded in showing that our author's system corresponds to the general view of the influence of animal acts on the nutritive functions, with which we set out in this article; the following quotation, entitled, "Final Retrospect," will show, we think, that his method and our method are but two modes of stating the same thing.

"1. The mental acts, wherein the soul gathers around it in harmonious union the constituent elements of its nature, are the most powerful influences in maintaining and in restoring health of body.

"2. But in very consequence of this vitality, they cannot be checked, chilled, or suppressed, without correspondingly serious injury to the health of the body.

"3. Though not checked, chilled, or suppressed, these central acts of love, and confidence, and hope, may insensibly become weak and emasculated by the drain upon them, from the *desires*, etc., which are their own progeny, and borrow strength from them. Such "binary compounds," being imperfect representations of the soul, act imperfectly upon the whole body, and tend to develop a morbid condition in one or other texture.

"4. These binary compounds, having no vital affinity between the two constituent elements (apart from the vitality of the central mind), are apt to be resolved into their components. That component principle, which is superior in strength, being left in solitary action, produces a correspondingly one-sided development of the body—an uneven or anomalous condition of the animal economy."

As our space is exhausted, we conclude this notice with some quotations from the preface, showing the circumstances under which this essay was produced :—

"In the succeeding prefatory remarks, we would seek to recall to the reader's memory, or now for his information to state, the occasion on which the thesis, in its general outline as an attempt to connect moral and metaphysical philosophy with practical pathology, was originally proposed by Sir E. B. Lytton. That proposal was publicly made in the address delivered by him, as their Honorary President, to the Associated Societies of the university of Edinburgh, on the evening of January 18, 1854. It is contained in the following passage, which may with propriety be quoted :—

"'We live longer than our forefathers, but we suffer more from a thousand artificial anxieties and cares. They fatigued only the muscles; we exhaust the finer strength of the nerves; and, when we send impatiently to the doctor, it is ten to one but what he finds the acute complaint, which is all that we perceive, connected with some chronic mental irritation, or some unwholesome inveteracy of habit. Here, then, the physician, accustomed to consider how mind acts upon body, will exercise with discretion the skill that moral philosophy has taught him. Every one knows the difference between two medical attendants, perhaps equally learned in pharmacy and the routine of the schools: the one writes in haste the prescription we may as well 'throw to the dogs;' the other, by his soothing admonitions, his agreeable converse, cheers up the gloomy spirits, regulates the defective habits, and often, unconsciously to ourselves, 'ministers to the mind diseased, and plucks from the memory a rooted sorrow.' And the difference between them is, that one has studied our moral anatomy, and the other has only looked on us as mere machines of matter, to be inspected by a peep at the tongue, and regulated by a touch of the pulse. And in order to prove my sense of the connection between moral and metaphysical philosophy and practical pathology, and to pay a joint compliment to the two sciences for which your college is so pre-eminent, I here, as a personal favour to myself, crave permission of the heads and authorities of the university to offer the prize of a gold medal for the current year, for the best essay by any student on some special subject implying the connection I speak of, which may be selected in concert with the various professors of your medical schools and the professors of metaphysics and moral philosophy.'

"To this offer the Senatus Academicus responded with their usual promptitude and public spirit; and toward the close of April 1854, they announced as a special subject of competition to their students, 'The influence exerted by the mind upon the body in the production and removal of morbid and anomalous conditions of the animal economy.'

"To this announcement there was appended a caution, to which may we next solicit attention, as containing two important indications of the kind of essay desired by the Senatus, and consequently attempted by us. The caution was thus worded :—'*Nota bene.*—Something more is expected than a mere enumeration of facts, however striking and various; some attempt to methodise, and, if possible, to explain them.'"

In conclusion, we congratulate the young author on the success of this attempt, and advise him to persevere in the prosecution of the subject, while, at the same time, we suggest to him that he will gain more favour with the majority of readers if he incorporate with his transcendental method, something of the plainer mode of speaking, exemplified in our introductory observations.

1. *Meddelelser fra det Chemisk pathologiske Laboratorium i Wien.* Af Cand. Medicinæ LUDVIG DAHL. (Norsk Magazin for Lægevidenskaben, Bind VIII., H. 6: Christiania, 1854).

Communications from the Laboratory for Pathological Chemistry at Vienna. By LUDVIG DAHL, Candidate in Medicine. (Norwegian Magazine for Medical Science, Vol. VIII., No. 6: Christiania, 1854).

2. *Heller's Pathological Chemistry of the Urine, etc.* By LUDVIG DAHL, Cand. Med. Translated from the Norwegian by WILLIAM D. MOORE, A.B., M.B.T.C.D., etc. Dublin, 1855.

3. *Uroscopie, oder vereinfachtes Verfahren den Harn in Krankheiten chemisch und mikroscopisch zu untersuchen und semiotisch zu deuten.* Von Dr Dr FRÄNCKEL und RAVOTH. Berlin, 1850.

Uroscopy, or a simplified method to examine the Urine chemically and microscopically in diseases, and to note the indications. By Dr A. FRÄNCKEL and Dr RAVOTH. Berlin, 1850.

WE have grouped together the little works, the titles of which we have just quoted, because they severally profess to give a brief exposition of the methods of pathological inquiry, adopted in the well-known chemical laboratory connected with the great hospital of Vienna. The vast opportunities enjoyed by Dr Heller in that establishment, in his special department, employed as these are with immediate reference to cases under treatment within the institution itself, and with the concurrence, or, not rarely, with the direct participation of the physicians and surgeons in charge, confer a value upon the results such as cannot easily be claimed for similar labours in other localities. Not fewer than about 1200 distinct investigations, besides a large proportion of more casual inquiries, are usually completed here in the course of each single year, and are brought into continual collation with the progress and termination of the relative cases of disease. Of the different objects, the urine is that which constitutes the most frequent topic of scrutiny; but the fæces, sputa, matters vomited, exudations, blood, pus, concretions, pseudoplasms, and other morbid products, are all of them, as occasion suggests, submitted to a like careful examination.

M. Dahl has thus attempted an important service to his countrymen, by endeavouring to render them familiar with the methods and the results of so extensive a body of inquiries; and we are glad to be able to acknowledge, that he has, upon the whole, executed his task with great judgment, and with corresponding success. The details are nearly universally presented with accuracy and clearness; and we are surprised by the mass of facts which he has been enabled to compress, without obscuring them, within limits so contracted. We could have wished, certainly, that he had rendered more justice to Dr Heller, as well as removed a few difficulties from the way of the reader, by presenting somewhat more methodically the precise succession of steps by which the investigation of a sample of urine may be most conveniently effected. Dr Heller is accustomed to direct, and we have ourselves followed the arrangement with advantage, that, after recording a few particulars regarding the patient, or with reference to the medicines prescribed, we are to note down a description of the general physical properties of the fluid under examination: its colour, smell, specific gravity, acid or alkaline reaction, and its degree of transparency. Should the urine be turbid, the cause of this is next to be ascertained; and we are then to proceed to test for the presence of albumen, and afterwards for the chlorides, the principles which he terms urophæine and uroxanthine, the sulphates, the earthy phosphates, and the alkaline phosphates, in the order indicated. Urea, and uric acid, sugar, biliphæine, pus, oxalate of lime, etc., may follow in a succession which may be less rigorously determined. It is only when the whole of the protocol is filled up, that we are to consider ourselves entitled to take any steps towards appreciating the results, and establishing a diagnosis. Besides hinting at this little deficiency, and suggesting its removal, there is one positive inaccuracy with which we must charge M. Dahl, the results of which re-appear occasionally throughout his pages. By confounding the symbols for uric acid, and for urea, misstatements of essential consequence occur in several instances, and equivocal meanings in others, and that sometimes where the context should have at once suggested the probability of a doubt or an error. With a Swedish subject, it was scarcely to have been anticipated that the plan of symbols devised by Berzelius, and, in this instance, followed by Heller, by which the vegetable and animal acids are indicated by a line above their initial letter ($\bar{U}$=Uric acid) should have escaped recollection. Dr Moore, we observe, has not detected this source of inaccuracy, examples of which occur at pages 67 and 68, and elsewhere in his translation. Thus, under the head of cerebral affections, excess of uric acid is substituted for excess of urea; although we know, that Heller, whose views are here understood to be represented, has seen the latter to so remarkable an extent in meningitis, that, on testing the urine with nitric acid, the whole crystallizes so firmly and completely, that the glass may be inverted without the escape of its contents.

Dr Moore has been induced to attempt the task of translation, from having become impressed with the idea, that a concise manual, which should enable the practical physician, without undue expenditure of time or labour, to ascertain for himself the leading features of the urine and other animal fluids in their healthy and morbid conditions, was a desideratum in our medical literature. He might have added to this, that it must prove of interest and advantage to the student, to become acquainted with a method of approaching the subject differing from that usually adopted in this country: and to perceive, in the new nomenclature and the modified ideas introduced generally with a prudent reserve to his attention, a proof that the subject is still in a state of mere transition and progress; as well as a caution that not a few of the dogmas, of what with many is so one-sided a pathology, founded even in parts, not rarely, upon a complete inversion of the order of morbific causation, and assigning to an effect the weight and virtue of a cause, are to be accepted with immeasurably less confidence than that with which they are propounded by their more sanguine assertors. It would be well if some of these would recollect, that one symptom is no symptom: but that each is valuable only as a part, and must be judged by its relations. There are many of the facts, if they be facts, of the chemical pathologist, to which a place has yet to be assigned in medical science. It seems, indeed, too much to demand, that every fact or speculation, of whatever description, should have apportioned to it at once its direct practical value. Each remains, however, as the property of science; and it is only, perhaps, through some fortuitous incident, or sagacious train of inquiry, that it can assume afterwards its just position and import. The chief merit, after all, of many a true discoverer, lies in his not allowing to pass unrecognized that which has come unbidden.

Dr Moore's translation is couched in clear and elegant language; and yet we are constrained to confess, for it is our privilege and duty to be candid, that, if it leaves us the impression of its having been executed by an accomplished physician, it is by one among whose accomplishments is not to be reckoned a familiar acquaintance with the Danish, or, as he is pleased to term it, the Norwegian tongue. The very circumstance of his styling his work a translation from the Norwegian, alone provokes suspicion; for so to designate the language of an essay, because it was published at Christiania, is about as reasonable as it would have been to have styled his own version a translation into the Hibernian, because published in Dublin. The Danish tongue, "*det danske Sprog*," is alike spoken and written exclusively in the two northern kingdoms, for long and till recently united, Denmark and Norway. The only proper Norsk, or Norwegian, is that which constituted the original Scandinavian branch of the Gothic stem, which still subsists in Iceland, having its own distinct literature, ancient and modern; and even this language was formerly still more frequently termed Dansk, or Danish, also. With this initiative, it must be permitted us to own that we were not surprised to find, in addition to some trivial inaccuracies, to an important one indicated by Dr Moore himself, and to an occasional deficiency in seizing some of the more delicate shades of meaning, such mistakes as *often*, instead of *usually*, (som oftest); *sufficient quantity*, instead of *excess*, (overskud); *uric acid*, instead of *urates*, (urinsure Salte); *fermentation*, simply, instead of *formation of fungi*, (Sopdannelse); *boiled for a minute or two*, instead of *brought once or twice to boiling*, (koger man 1 eller 2

Gange); *holding the vessel inverted over another*, instead of *pouring the contents into another*, (helde den over i et andet); *smell of mould and yeast*, instead of *fungoid and mouldy smell*, (Soppe og skimmellugt); of *little* importance, instead of *great*, (meget vigtig); *namely*, instead of *especially*, (navnlig—udtrykkeligen); *water containing spirit*, instead of *water containing alkali* (alkaliholdigt vandt). These cannot be termed wholly venial errors, for some of them alter the sense very materially. If they proceed merely from inattention, it was not the less our duty to point them out: but it is only justice to Dr Moore to state, that his labours have aided us in spending a much larger portion of our time in a more agreeable manner; and that, with a few qualifications, his work is one which we would gladly see extensively in the hands of the student and general practitioner.

The essay by Drs Fränckel and Ravoth contains an arrangement of the materials, which perhaps produces them in a more easily accessible form than that of M. Dahl; though Dr Moore has remedied this comparative defect in the latter by means of a copious index, useful even in so small a treatise, and which is wanting in his original. The Berlin physicians express themselves as indebted to Becquerel, Simon, Hoefle, Canstatt, and others, for a portion of their results; but their work is evidently essentially based on the experience and doctrines of Heller. We are glad to learn that the Viennese chemist is himself preparing a full view of his opinions, to be published, as we have understood, simultaneously, in German and in English. We anticipate, in this way, a highly practical and important addition to our medical literature, of which we shall unwillingly be disappointed.

Part Third.

PERISCOPE.

MEDICINE.

ON THE PATHOLOGICAL ANATOMY OF CHRONIC HYDROCEPHALUS.

In this communication, read before the Academy of Medicine by M. Blache, one of the candidates for the vacant place in the department of pathological anatomy, the author's intention is to describe, more precisely than has hitherto been done, the details of the pathological alterations resulting from this disease.

He first examines the changes undergone by the nervous substance itself and the membranes enclosing it; and then passes on to the consideration of those occurring in the different cerebral cavities, and the canals and orifices connected with them. The following are the conclusions at which M. Blache arrives:—

1st. In internal hydrocephalus the serum accumulates in the cerebral ventricles, but not in the cerebellar or fourth ventricle; it does not communicate with the cephalo-rachidean liquid.

2d. Contrary to the opinion of some authors, the white and the grey substances are recognizable in the nervous laminæ, into which the fluid pressure transforms the ventricular walls ; when the distension has not been excessive, the circumvolutions are also to be found, and, in all cases, thickenings, which are the vestiges of them.

3d. The corpus callosum, fornix, and septum lucidum, are almost entirely destroyed and converted into fibrous laminæ.

4th. The tuberculum annulare, the cerebellum, and the origin of the cranial nerves, preserve their integrity, with the exception of more or less alteration always existing in the optic and olefactory nerves.

5th. The ventricular membrane is thickened so much as to be capable of dissection throughout its whole extent, by which it has been established to be continuous with the choroid plexus, and prolonged across the aqueduct of Sylvius and the foramen of Monro.

6th. In the interval between the two laminæ, which, by facing each other, form the septum lucidum, it is easy to demonstrate the existence of the fifth ventricle, and its communication with the third.

7th. The pituitary body is canaliculated.

8th. The anterior orifice of the aqueduct of Sylvius was found obliterated in the two cases where this was examined ; the cerebral cavities were thus completely closed.

9th. Regarding the nature of the malady, the absence of all softening of the cerebral substance, and the very slightly plastic nature of the fluid effused, discountenance the idea of chronic hydrocephalus being the result of inflammation. In our opinion, says M. Blache, it is a pure and simple hydropsy.—*L'Union Médicale, May* 31, 1855.

IRRIGATION OF THE HEAD IN INFANTILE CONVULSIONS.

Dr A. Lalesque de La Teste, has brought forward a means of arresting the attacks of this disease, which he asserts has, in his own practice, been attended with the best results. This consists in the irrigation of the head by cold water, and the following are the directions given by the author for its employment :—The time most likely for the application of this remedy to be followed by success, is immediately upon the disease manifesting itself ; the effect to be produced is intimately connected with the existence of a certain degree of sensibility, the longer we delay its use the more difficult will be the production of the cutaneous impression, and, consequently, the modification of the convulsive movements. The most suitable period, then, for the employment of irrigation, is that of the paroxysm. By its use during the intermissions, reflex movements are, no doubt, produced, but these are of no effect in the next attack, because the convulsive crisis itself remains unchanged. By acting on the contrary, during the paroxysm, we obtain an immense advantage in arresting the disordered movements of the patient, and substituting, by means of their disturbance, movements of a more regular description, and which immediately become voluntary. M. Lalesque does not employ more than four pints of water at a time for these purposes. Where this does not succeed, he has recourse to depletive measures for diminishing the congestion upon which such obstinacy of the malady seems to depend. The repetition of the remedy, if of short duration, he considers as quite safe ; too long applied, however, he believes it would be attended with bad effects.—*L'Union Méd.*, 19*th June* 1855.

ON CERTAIN CONDITIONS IN WHICH SOUNDS ORIGINATING IN THE ROOTS OF THE BRONCHI ARE TRANSMITTED TO DISTANT PARTS OF THE CHEST.

M. E. Barthez, physician to l'Hôpital Sainte Eugenie, another candidate for the same appointment as M. Blache, read a communication on this subject to the members of the Academy of Medicine, at their meeting of May 29. After adverting to the importance of an acquaintance with such transmitted sounds, as being deceptive in their tendency, and apt to lead to serious errors in diagnosis and treatment, he remarks, in conclusion, that:—

The normal and abnormal sounds produced in the large aerial trunks can be transmitted across the chest, and perceived at a point remote from their place of emission.

The means of transmission are substances, solid or liquid. In the first case, the anatomical conditions necessary are:—

1st. Solidity and compactness of the substance.

2d. Its intimate adherence to the larger bronchi or trachea.

3d. Its contact with a part of the chest accessible to the ear.

In the second case, these conditions appear to be:—

1st. the co-existence of a solid body adhering to the bronchi, and establishing a continuity of substance, vibrating between them and the liquid.

2d. A particular position of this solid body, due either to costal adhesions or to the considerable quantity of the effusion.

The sounds perceived under these circumstances are frequently augmented in their intensity, so as to simulate bronchial respiration, gurgling, or amphoric respiration, in the absence of all pulmonary excavation, or any communication between the pleura and bronchi.

These pseudo-bronchial, cavernous, and amphoric sounds have a peculiar character. This, as well as their exaggeration, is owing to the passage of the sonorous vibrations across a sort of stethoscope, half solid and half liquid, which modifies the character and intensity of vibrations, usually transmitted by solid bodies alone.

If, says M. Barthez, we add that the transmission of the sounds is more easy when the thoracic cavity is small and narrow, when its walls are thin and dry, and when the respiratory movements are strong and rapid, we shall have indicated the principal circumstances favourable for this transmission of sounds across the chest.—*Gazette Médicale, June* 2, 1855.

SPEDALSKHED (ELEPHANTIASIS).

A medical committee has recently collected from the clergy, and district physicians, of Norway, a set of returns, in terms of the Royal rescript of 6th July 1852, presenting the number of those suffering from this disease throughout the kingdom. From these it appears that the aggregate number is 1782, of whom upwards of 1000 are in the Bergen district alone. There seems, however, some reason for suspecting, that even this number may be considered as below the reality. An attempt to estimate the proportion of inter-marriages among affected individuals rates it at about 400; so that the descendants of this number may be regarded as likely to carry the hereditary taint in their constitutions, though the returns afford no means for judging of the actual extent of the liability.—*Norsk Magazin for Lægevidenskaben*, B. viii., p. 746 (Nov. 1854).

[Professor Holst (*Sindssyge, Blinde, Dövstumme og Spedalske i Norge, i* 1835 *og* 1845, p. 24), founding upon the census returns, which, however, on this head were admitted to be defective, gives the number affected with *Elephantiasis*, in 1845, as only 1123: 621 males and 502 females; or in the proportion of 1 in 1183 of the population.]

ON THE CLIMATE, TOPOGRAPHY, AND DISEASES OF MIRZAPORE, AGRA. (Extract of a Letter from JOHN OWEN EVANS, M.D., LOND.

The temperature here in the hot season is considerably higher than at Calcutta; it is also lower in the cold season. The west wind, which chiefly prevails, is, in the hot season, literally and truly a hot wind. The thermometer in my study is now, while I write (2d May 1855), standing at 87°, while that in the shade in the verandah is 101°·5. What it would be in the scorching sun I do not know. The door and window of my study are closed, but it is not cooled by any artificial means at present. The rains commence in June or

July, and are very welcome at first; but, after a time, the rainy season is more unpleasant than the hot season; moist heat being much more felt than dry heat. The cool season is in some respects like an English summer. It is the time of flowers, vegetables, fruits, crops, and of health too; for I believe the mortality here is much higher in the hot than in the cold season. There appears to be a class of diseases specially prevalent in each season. In the hot, cholera, diarrhœa, and dysentery. In the rains, intermittent fever; and in the cold, catarrh and bronchitis. I was not surprised at the prevalence of the last, when I saw how very poorly many of the natives were clad. In the hot season, I feel as if no clothing could be too light, and in the cold, as if none could be too warm. The country around here is very flat, well cultivated and tolerably well supplied with trees. There is a low range of Ghauts about six miles distant. The city itself is not free from the dirt and crowding which are supposed to generate typhus and typhoid fevers in Britain; but, as far as I can learn, these diseases are entirely unknown here. I have not yet met with a case of idiopathic continued fever. Scarlatina is also, I believe, quite unknown. Measles is said to be sometimes prevalent, but I have not yet seen a case. Hooping-cough has been very prevalent of late. I was surprised to find that the natives do not look on it as a specific disease, but merely as a bad cough. They are not aware that it is contagious, nor that it occurs but once to an individual. Constipation is very common here; so are intestinal worms; so are skin diseases. Leprosy is a knot I have yet to unravel; I have seen it in various stages and phases, and perhaps various diseases called by one name: but none of the patients have attended at my dispensary long enough to give me an opportunity of watching the progress of the disease, or of fairly testing any plan of treatment. The people here very seldom come to report themselves recovered, though they do occasionally, and some of them seem very grateful. Generally, they appear to have no idea of their physician judging for them when they may leave off remedies, but as soon as they feel better they cease to attend.

SURGERY.

GUTTA PERCHA BOUGIES BROKEN IN THE BLADDER.

The *Association Journal* for November 1854, contains the case of a druggist, who on attempting to withdraw a gutta percha bougie from his urethra, unfortunately broke it off. A portion, an inch and a half in length, remained in the bladder. All attempts at extraction with lithotrity instruments, etc., failed. Mr Cotton, however, remarking that the branches of the lithotrite were filled on each trial with debris, persevered in his attempts, and thus managed to reduce the mass. Other portions were evacuated with the urine. Two were found obstructing the urethra and were extracted. Thirty fragments in all came away. The bladder was then ascertained to be empty. It is not stated whether the gutta percha of the instrument was of good quality or not. The case, however, is interesting as showing the possibility of removing in debris a foreign body which cannot be extracted *en masse.*

The following case is of more recent date:—A medical man residing some miles from Paris, who had for several years been suffering from stricture of the urethra, for the treatment of which he was in the habit of passing a considerable sized bougie every month. At the time of the accident he was depressing the extremity of a large straight gutta percha bougie, upon introducing it within the bladder, when he felt a sudden snap, and on withdrawing the instrument, it was found to be broken, the fragment remaining impacted in the urethra. He immediately proceeded to Paris, where he was seen by M. Amussat (*fils*) who, by pressure on the perineum and by examination, per rectum, could, with the finger, distinguish the foreign body occupying the whole of that portion of the urethra comprised between the bulb and the neck of the bladder.

After ineffectually attempting its extraction with Hunter's forceps (*pince de Hunter*). M. Amussat thought of employing a lithotrite of a child's size, as more likely to be of sufficient strength at the extremity of the blades, for their insinuation between the wall of the urethra and the body to be extracted. Having measured the remaining part of the bougie which had been withdrawn, ascertained to what extent the separation of the blades of the lithotrite was necessary for its seizure, the instrument was introduced, and by gently moving it and directing and maintaining the position of the fragment of the bougie by the finger in the rectum, M. Amussat succeeded in its extraction. Immediate relief was afforded to the patient, and no bad symptom whatever shewed itself after the operation.—*L'Union Méd. June* 5, 1855.

ON THE IMPERFECTION OF GUTTA PERCHA BOUGIES.

Prof. Williams.—The subject of the imperfection of such bougies having lately been brought under the notice of the society, reminded him of an instance which had fallen under his own observation, of the fragility of those instruments, at least, when of a bad description. In the end of August 1850, a man was admitted into the City of Dublin Hospital, in consequence of a gutta percha bougie having broken in his urethra on the preceding day. He was found to have a rather tight stricture, and in order to accelerate the dilatation of the urethra, the bougie, every time it was introduced, was left in the canal several hours, or until he experienced the necessity of passing water, and the resident surgeon was instructed then to withdraw the instrument, the patient simultaneously making a moderate effort to make water. This plan was commenced on August 28th, and on 5th of September, when the instrument was withdrawn, a fragment of the broken gutta percha bougie passed with the urine, and eight other portions of it came away on five different days during the succeeding three weeks in the same manner; the last fragment having been passed on the 26th of September; at all events, no further portion was subsequently voided, and, on fitting the fragments together, and to the part of the instrument that had been withdrawn unbroken, they appeared to represent the original bougie in its entire length, and the patient was under observation for several months afterwards, as he came to the hospital from time to time to have an instrument passed to complete and maintain the dilatation of the urethra. It was worthy of remark, that there was not the slightest appearance of incrustation upon any one of the fragments of bougie that escaped from the bladder; the extreme brittleness of the gutta percha bougie is shown by the number of small pieces into which it was broken up in the bladder.

Mr Tufnell.—It is evident that there is but little gutta percha in this bougie; because if you take a piece of the genuine article, say a strip of the sheet gutta percha, or a piece of that which is used as a cord for window blinds, you will find that you cannot break it with almost any degree of force you may employ. It is a satisfactory thing, however, to know in reference to accidents which may occur from using *a so-called gutta percha bougie*, that in no single instance has it been yet necessary to perform any operation for its removal, inasmuch as the bougies, from their brittleness have always broken up in the bladder, and the pieces have been passed by the natural efforts of the patient in making water.

Dr A. Mitchell.—Mr Tufnell's observations may be correct enough; but I believe there is a very great misconception abroad as to this substance which is called gutta percha. Now, in point of fact, there is no such thing as "gutta percha" at all. Taband is the proper name of the article, and it is one of those milky juices which exude from different plants that are well known to botanists. The best of these juices is the caoutchouc or India rubber, and they are all of them liable to a species of spontaneous decomposition which renders them very unsafe in a surgical point of view. It is highly probable, therefore, that the bougie referred to by Professor Williams, had undergone decomposition, and thus became broken up in the manner described.

Dr Stapleton—I got some of it which was coloured. It had been made for lathe-bands, and after a time it became so rotten as to be perfectly useless for surgical purposes. It seems to become crystallized by time, and in this condition it is exceedingly brittle.

Mr Tufnell—All the bougies which have broken have been made of a black sort of material; whilst I have found that the brown gutta percha, such as is seen coiled up in the shop windows, and is sold for blind or picture cord, is exceedingly tough and capable of resisting extreme tension.

Dr H. Kennedy—I beg to remark that when this subject was originally brought forward here by Mr Tufnell, Dr Aldridge, than whom there can be no better authority on a question of this kind, stated that he had analyzed some of these bougies, and found that charcoal had been put into them with a view of giving them a dark colour.

Professor Williams—The bougie in this case of mine was not only sold under the name of gutta percha, but was actually purchased from an agent of the Gutta Percha Company.

Mr Tufnell—If we employ genuine gutta percha, I believe we may use it with perfect safety; I have a gutta percha bougie in my possession made by myself, which I have used at least fifty or sixty times, and yet no accident has occurred with it.

Dr Carte—I have used a great deal of gutta percha in making moulds, and I can state from my own experience, that in the course of two or three months a regular decomposition or crystallization takes place in it, in consequence of which it will snap with the greatest possible facility. At the same time, I am satisfied that if you have the genuine gutta percha, it will not only be impossible to break it, but it will never pass into a state of decomposition. I think we ought to follow Mr Tufnell's advice by procuring the pure brown gutta percha, commonly sold for lathe-bands, and if we find that it will bear a considerable degree of tension without breaking, we may conclude that there can be no danger in using it for a bougie.

President—The result of the discussion seems to be that we ought not to procure our bougies from the shops, but obtain the proper material and manufacture them for ourselves.—*Surgical Society of Ireland, March* 24. *Dub. Med. Press, May* 2, 1855.

[We frequently avail ourselves of the interesting proceedings of this Society, as they are reported in our contemporary, and have above renewed our obligations. We beg to correct a mis-statement or a misprint which we inadvertently copied into the May Number of the *Monthly Journal of Medicine*, p. 438, from the proceedings of the Surgical Society of Ireland, as given in the *Dub. Med. Press* for April 4, 1855. Professor Williams, in bringing a case of dislocation of the astragalus before the Society, stated that the dislocation backwards of that bone was not noticed in the text books on surgery, and, among others, mentioned that of Professor Miller of the University of Edinburgh. We have examined both editions of Professor Miller's *Practice of Surgery*, and we find that the lesion in question is carefully described.]

NOVEL METHOD OF DETECTING OBSCURE DENTAL CARIES.

This affection, so little noticed in most of the text-books on surgery, has only been known for a comparatively short period. Since it was first specially pointed out by Delpech, the attention of medical men has been sufficiently often directed to fistulous ulcers arising from disease of the teeth, to render their nature pretty generally understood. The present case is interesting from the means employed by the medical attendant in discovering the particular tooth which was the cause of the disease.

The Countess N. N. had suffered from a fistulous opening, situated near the chin, for a period of about twelve months. The disease had been unsuccessfully treated by M. Cavallini, when M. Pagello, who reports the case, was called by the patient for consultation. Upon examination, the opening was found to bleed easily, and rough and apparently carious bone could be felt by the probe. It was at that time suggested that the affection might arise from a diseased or carious tooth; but all these organs were found of a perfectly healthy appearance, nor had any suffering from them ever been experienced by the patient; they were, besides, unaffected by percussion. Various remedies were had recourse to, and another surgeon, M. Asson, consulted, without any advantage; the idea then suggested itself to M. Pagello, that by injecting the fistulous canal with a decoction of rubia tinctorium, should any tooth be at fault, it would thus become coloured, and the origin of the disease be demonstrated. This measure was adopted, and in a few days the incisor tooth, situated above the fistula, became sensibly coloured. This tooth being extracted, the fang was found carious, and a cure was effected in a few days.—*Gazette Méd. June* 23, 1855.

ON THE RESULTS OF AMPUTATION, AS REPORTED BY THE DANISH SURGEONS IN 1848-51.

Where there exists a wound with fracture in the upper two-thirds of the thigh, M. Ribes asserts that amputation is absolutely necessary, while Dr Simon, a German surgeon, is of the contrary opinion, and, in a work published in 1851, makes the following remarks:—

"Comminuted fractures of the thigh, produced by balls, and which occupy its middle or superior third, ought, without exception, to be treated by the method having in view the preservation of the limb; those of the inferior third by immediate amputation."

The observations of the Danish surgeons, however, have demonstrated the great mortality prevailing among patients who have undergone amputation of the thigh consequent upon gun-shot wounds. Dr Clemenson has also remarked that purulent infection was of more frequent occurrence among those who had undergone amputations than among the other wounded, who, notwithstanding serious injuries, attended with suppuration, had the limb preserved. The mortality in the hospitals after amputation of the thigh amounted to fifty-seven per cent. These surgeons, therefore, had become more cautious in deciding upon amputation than they were at the commencement of the war, and had been enabled to preserve limbs in which wounds complicated with fracture extending to the knee or elbow-joint, would formerly have been considered as imperatively demanding amputation. Such clinical facts merit the attention of surgeons, and suggest the study *de novo* of a question so important as the treatment of gunshot wounds, complicated with fracture.—*Gazette Méd. May* 26, 1855.

MIDWIFERY.

CÆSAREAN SECTION SUCCESSFULLY PERFORMED FOR THE SECOND TIME ON THE SAME PATIENT, BY PROF. STOLTZ OF STRASBOURG.

For upwards of fifty years, says M. Stoltz, this operation, although frequently resorted to in Paris, has not generally been followed by success, whilst towards the close of the last century it was in numerous instances attended with the best results, in the hands of the celebrated accoucheurs of that period, Lauversat, Deleurye, Coutouly, Millot, etc. This failure of the operation, in the practice of modern surgeons, he considers as having led to its being regarded as much more hazardous than it really is, and to its consequent restriction to those cases in which it is found impossible to effect delivery by any other method. Thus, the accoucheurs of Paris have nearly all been induced to adopt the English practice, according to which, rather than risk the life of the mother, they sacrifice that of the child, wherever the difficulty appears surmountable by so doing; a proceeding which our author believes to be unjustifiable, on the grounds that one life is taken without any certainty of thus saving the other. M. Stoltz has performed the Cæsarean operation six times, with the result of saving both mother and infant in four of these instances, and the child in the remaining two. The latest of these cases is that which he communicates to the Academy of Sciences, as possessing additional interest in the fact of its being the second occasion in which the operation had been performed, with complete success, on the same individual.

The patient, Adele Fenninger, æt. 39, was the subject of general rachitic deformity, and had been operated on, three years previously, by Dr Bach of Strasbourg, who published the case in the *Gazette Médicale* of that city, in 1846. On that occasion the operation was successful, although performed under very unfavourable circumstances, the patient being "radicalement" rachitic, in very delicate health, ill nourished, and suffering from considerable obliquity of the uterus. At the time of the operation, somewhat too large an incision in the abdominal and uterine walls was attended with troublesome protrusion of the intestines; and during the progress of the case, erysipelatous inflammation of the points of suture, and phlebitis, followed by œdema, of the left inferior extremity, were circumstances which more than once threatened the life of the patient; however, by careful attention, these dangers were averted, and a complete cure was obtained in the space of two and a half months.

The second operation, which presents no features of much importance, is minutely described by M. Stoltz, who remarks, that from the ordinary course of the second pregnancy, three years after the first operation, it may be concluded that the cicatrization of the uterus had been sufficiently perfect to resist with impunity a second dilatation of that organ; and that the second operation, like the first, had been complete in its success, mother and child being both saved. In conclusion, he refers to a number of other instances where the operation had been repeatedly performed on the same patient with successful results. The following published cases are enumerated by him, and the publication mentioned in which they are to be found:—

Dr Mangold, of Bale, operated, first in 1797, and again in 1801, and M. Mautz, in 1807, upon the same patient, who died on the twenty-second day after the third operation.

Dr Bacqua, of Nantes, operated successfully on one patient, first in 1797, and again in 1806.

Dr Dariste, of Martinique, operated successfully on one patient in 1805 and 1807.

Dr Lemaistre, d'Aix operated three times on one patient, in 1805, 1807, and 1814. The patient died five days after the last operation.

Dr Charmeil operated in 1813 (?), and another surgeon in 1814, on one patient, each successfully.

Chaussier communicates the successful performance of the operation a second time.

Merrem of Cologne, operated successfully on one patient, first in 1821, and again in 1826. Dr Zwanck operated for the first time on a patient named Adametz; Dr Weidemann operated a second time; Dr Michaelis a third, and again a fourth time, with success.

Dr Rouvin communicates a case where the operation was repeated with success. Dr Bowen performed the operation twice on one patient, in 1833 and 1835, with success.

Professor Kilian of Bonn, operated successfully on one patient, first in 1832, and then in 1838. In another case, he operated in 1837, and the same patient recovered from a repetition of the operation in 1843.

Dr Mestenhaeuser operated successfully on one patient in 1840 and 1844.

Here then, adds M. Stoltz, are fourteen well authenticated instances of this operation having been successfully repeated in the same patients. In two of the cases mentioned, the operation was performed three different times, but, on the last occasions, followed by the death of the mother. In a third instance, however, it was performed no less than four times with complete success. This example would almost induce him to believe in those cases quoted by some authors, where women were said to have undergone the Cæsarian section six or seven times.—(*Gazette Médicale*, June 16 and 23, 1855).

ABORTION OCCURRING AFTER APPARENT DEATH IN THE MOTHER.

The following case is related by Dr Mayer :—A married woman, æt. forty-five, and in her fourth pregnancy, was seized with pneumonia, the severity of which was increased by the immoderate use of brandy. Upon a physician first seeing her, the disease, which had existed for some days, had assumed an intractable form, and death took place during a paroxysm of dyspnœa, on the 31st of March, at 4 o'clock A.M., being the ninth day from the commencement of the attack. For two days previously the motions of the foetus had not been felt by the patient, but although sensible till within a quarter of an hour of her decease, nothing led to the anticipation of a premature labour. The medical man, whose duty it was to certify her death, did so, and directed the body to be removed next day, at 4 o'clock P.M., to the dead-house. In the meantime, the corpse was left in bed, where it lay for thirty-six hours, and was visited by the friends and neighbours, who remarked the absence of any odour arising from the body.

While dressing the corpse, the attendants observed that a small tumour was situated between the thighs, and regarded it as a prolapsed uterus—that the corresponding part of the bed was wet with blood, and that no cadaveric rigidity existed. Notwithstanding, the body was placed in the coffin, and carried to the Salle des Morts.

The next day, April 2d, an hour or two before interment, the same attendants proceeded to examine the corpse, and were not a little surprised to find, between the legs, a dead female foetus. The author having been called, found that the body of the mother did not present the signs ordinarily apparent fifty-four hours after death, but simply stiffness and coldness of the extremities. The foetus, calculated to have reached the twenty-first week of utero-gestation, was attached to the placenta, which still remained in utero. At the autopsy, which was afterwards performed, the abdominal viscera were found to present no signs of the commencement of decomposition.

In the remarks which follow the details of this interesting case, the author expresses his opinion that the woman was not dead on the 31st of March, but in a state of syncope, and that had auscultation been carefully practised, the movements of the heart would undoubtedly have been heard ; he considers it probable that the membranes were ruptured during the paroxysm of dyspnœa, which preceded the apparent death ; that the motion to which the body was subjected during its dressing and removal to the mortuary, promoted the expulsion of the foetus, and that real death did not occur until after the termination of the labour.—(*Verhandlungen der Physicalisch-Medizinischen Gesellschaft in Wuerzburg* 1854, *and Gazette Méd.*, May 12, 1855).

EXTRACTION OF A UTERINE PESSARY FROM THE BLADDER. BY DR UYTTERHOEVEN.

This case occurred in a young woman who, on account of uterine displacement, required the use of a pessary à tige. Some time having elapsed after the introduction of the instrument, during which period the patient had neglected to withdraw and clean it, ulceration took place, and gradually perforated the vesico-vaginal wall. The pessary thus opened a passage for itself, by which its ivory head became introduced within the bladder, whilst the stem, which was of metal, was tightly grasped by the fistulous opening, and remained in the vagina.

The attempts to break the "cuvette" or head of the instrument having failed, M. Uytterhoeven, after placing the patient under the influence of chloroform, slipped a curved probe-pointed bistoury along its stem, and, guided by the index finger, entered it within the bladder by the morbid opening, which he then largely dilated, and easily withdrew the pessary entire. The subsequent treatment and history of the case offer nothing of particular interest, except that a urinary fistula remained after the operation.—*Gazette Méd.*, *May* 26, 1855.

Part Fourth.

MEDICAL NEWS.

OBSTETRICAL SOCIETY OF EDINBURGH.

Session XIII.

EXPERIMENTS ON THE PELVIC ARTICULATIONS. BY DR KEILLER.

Dr Keiller reported the results of a series of experiments which he had performed with the view of ascertaining the nature and extent of motion in the sacro-iliac and pubic articulations, and of determining the expediency of the operation of Symphyseotomy. The experiments were performed on female subjects, several of whom had borne children, and in three of the cases an advanced state of pregnancy existed.

Dr K. admitted that a certain degree of separation and motion occasionally took place in the pelvic joints, and that a small amount of space might be obtained by forcible separation of the pubic articulation, either by nature or operative procedure, but denied that the space so gained was in the direction where it was usually required in deformed pelves, viz., in the antero-posterior diameter of the brim.

Dr K. demonstrated that, on dividing the inter-pubic fibro-cartilage, great retraction of its fibres took place in front, where its structure was comparatively thick, thus giving rise to the idea that considerable separation of the bones had taken place, which was not actually the case, a point easily ascertained by examining the posterior aspect of the joint, where the bones, after the operation, would be still found almost in close apposition. This apparently great separation of the articulation in front had no doubt frequently misled those who believed that by division of the symphysis real space was gained.

Dr Keiller stated that he could not in any other way account for the conclusions arrived at by Dr Duncan, who, in his recent communication to the society on this subject, had affirmed that, in experimenting on the pelvis of a subject, he had succeeded in readily procuring about two inches of space between the pubic bones, by simply dividing the symphysis, and without applying any force to increase the amount of separation.

Dr Keiller had now performed the experiment of dividing the symphysis pubis on a great number of subjects, and had carefully noted the comparative measurements, and had arrived at conclusions widely different from those come to by Dr Duncan.

Dr Simpson exhibited three recent pelves illustrative of this subject, and mentioned the results of his experiments with them. He agreed with Dr Keiller that the extent of separation and motion was by no means so great as had been stated by Dr Duncan. Dr S. considered the Sigaultian operation inexpedient and dangerous, and thought that it would not again be revived from its present obsolete position.

Dr Duncan made a few remarks on the preparations, and adhered to the opinions he had formerly expressed as to the mobility of the articulations in pregnancy, and as to the propriety of the question of adopting the Sigaultian operation in particular cases, being reconsidered.

LABOUR COMPLICATED BY LOCKING OF HEADS OF TWINS IN THE PELVIS.

CASE I. BY DR SIDEY.

Dr Sidey communicated the following particulars of a case of twins locked during labour, in which both children were born alive, and referred to various cases of the same kind which had been recorded.

Mrs B., her fifth confinement and her second of twins; saw her during the day, when the pains were slow and weak, the presentation being high, and of the breech. I left word that when the pains became stronger, I was to be sent for. In the evening they became so; and when I arrived, the breech was just expelled; having relieved the cord from pressure on the head turning into the hollow of the sacrum, a hard tumour came pressing down under the arch of the pubis during a severe pain, preventing the presenting head being extracted. Upon examining carefully, I found this tumour nothing else than the head of a second child, jamming itself firmly on the first, and had some trouble in relieving the now locked heads; taking advantage of the interval of pains, and keeping up the head of the second child during the pain, I succeeded in extracting the head of the first child, and the second followed. The twins were of the usual size; mother and twins did well.

Dr Simpson made some remarks on the treatment of such cases, and referred specially to the case brought before the society some years ago by Dr Lewins of Leith.

CASE II. BY DR MATTHEWS DUNCAN.

Shortly after 5 P.M., Dr Duncan was requested by Dr George Rosa, to go to assist him in effecting delivery in a case of the above description. Dr J. Sidey was also present during the delivery.

Mrs F., æt. 21, was taken in acute labour of her second child at noon, after being for some hours affected with lingering pains. The body of a child was born at 2 P.M. Matters continued in this state, under very strong pains, till nearly 5 P.M., when Dr Rosa first saw the woman.

Dr Duncan saw the case soon after, and found that, while the body of the first child was born, its head was prevented from entering the pelvis by the head of the second child, which was lodged in the hollow of the sacrum, having the neck of the first lying between it and the region of the thyroid foramen of the left side of the mother. The occiput of the second child was directed to the right side of the mother; that of the first child was in nearly an opposite direction. During a pain, both heads descended, but especially the second, which then pressed strongly into the outlet of the bony pelvis. It appeared to Dr D. that both children might have been delivered entire. But a different plan was followed.

The child, half-born, was certainly dead; and the second child was so also (as far as could be made out). The vagina was much stretched, and, as if dragged upwards, and the uterine tumour tender to the touch. The woman had been long in this distressing state, and was urgent for relief. Dr D., therefore, resolved to deliver quickly, and as easily and safely as possible for the mother.

With a bistoury, he decapitated the first child, already certainly long dead. After this, a few pains were observed. The heads continued in the same relative position, and both were propelled downwards during the contractions, but without any decided progress. The forceps were then applied to the head of the second child, which was thus delivered almost without any traction. The head of the first child was then easily removed by seizing the stump of the cervical spine with a Lyon's forceps, and extracting it. The placenta was soon afterwards delivered (6 h. 15 min. P.M.). The woman made a very good recovery. The twins were large, well-formed children.

SANGUINEOUS PELVIC TUMOURS.

Dr Simpson exhibited drawings and preparations of two late cases of large sanguineous tumour occurring in the pelvis, and made some remarks on their position and character.

NEW METHOD OF INDUCTION OF PREMATURE LABOUR. BY DR SIMPSON.

Dr Simpson made some remarks on the modes of inducing premature labour, and stated, that he had lately induced it in some instances, by introducing the uterine sound straight up between the body of the uterus and membranes, not turning the instrument round the cervix or body, as was Dr Hamilton's mode.

NEW REASON FOR THE INDUCTION OF PREMATURE LABOUR. BY DR SIMPSON.

Dr Simpson stated that he had been induced to bring on abortion in a case of pregnancy, on account of the presence of extreme dropsy and dispnola from albuminuria. The patient, who was apparently dying at the time, recovered speedily and entirely after the abortion.

Dr G. Weir mentioned the particulars of a somewhat analogous case.

OCCLUSION OF OS UTERI—RETARDING LABOUR.

Dr Moir related the particulars of a case in which the os uteri was occluded after the application of potassa fusa. The labour was, in this case, supposed to have been retarded for a month beyond the full time.

ATROPHY OF PLACENTA.

Dr Keiller communicated the particulars of a case of atrophy of the placenta that had occurred in the practice of Mr Pridham, of Bideford, Devon. Dr K. exhibited the placenta, and made some observations on its microscopic character. The following notes of the case are as reported by Mr C. Pridham :—

"I was called at 8 P.M. (March 4, 1854), to attend Mrs B., of Southcott, Devon.

"Aged 41, has had five children and two miscarriages ; last child five years since.

"Has not been unwell for 42 weeks. Quickened about the 15th September, and thinks the child died eleven weeks ago, at which time, without any cause of which I am aware, she became faint, had a few severe pains like labour pains, and felt as if the child suddenly sank down, after which she experienced the feeling of a dead cold lump at the pit of the abdomen.

"The pains continuing, she sent for her medical man, who gave her a dose of morphine, and the pains subsided.

"She knows of no cause whatever of the death of the child—no blow, fall, or any anxiety of mind. For ten days prior to the present time she has had a slightly-tinged discharge.

"The child was born after about 5½ hours' labour, and appeared to be about the seventh month of inter-uterine development. Neither child nor cord presented any appearance of putridity ; the latter was tied in a double knot at about its upper third.

"The placenta was very small, weighing only 8 oz., and presented to the naked eye a yellow glistening appearance, like fat, over its maternal surface, the sulci and some of the smaller lobes having rather a pinkish appearance. On microscopic examination, the villi, to the depth of about one quarter of an inch, were found generally distended, filled with fat globules and granules, the former seeming to increase towards the extremities. In some parts occasional earthy deposits were found, which disappeared with the disengagement of gas shortly after the addition of acetic acid. In no part could I discover the extravasation external to the villi, described and drawn by Dr Cowan, until I had squeezed them tightly after maceration in water ; there seemed a total absence of blood vessels in this part of the organ.

"The spongy texture appeared normal.

"I may add, that the appearances here described, with the exception of the knotted cord, are similar to those observed in a placenta I obtained last May, and which I gave to Dr Keiller ; but labour in this case came on within three weeks of the supposed death of the child.

"There was no hæmorrhage in either case, before or at the time of birth."

AMENORRHÆA WITHOUT CONSTITUTIONAL DISTURBANCE.

Dr Weir communicated the case of an adult, who had enjoyed uninterrupted good health up to the age of 23, when she was suddenly seized with head symptoms, and died after a few hours' illness. On a *post-mortem* examination, a cancerous tumour of the brain was found, although no symptoms had previously existed indicative of any such lesion. The uterus and appendages were infantile in size and appearance.

ABDOMINAL DROPSY OF FŒTUS OBSTRUCTING LABOUR.

Dr Keiller read the following account of a case of abdominal dropsy in the fœtus obstructing labour, as communicated to him by Dr Gray, in whose practice it occurred :—

"On the 15th June, I was called to see Mrs ——, who was in the 7th month of pregnancy. She complained of severe pain over the epigastrium. On examination, found the skin there exceedingly tense, and that the pain was increased by pressure. There was also much swelling in the feet, legs, and labia pudenda ; swelling in left leg greater than in right, extending more than half way up to the knee ; bowels much constipated. A simple medicine relieved somewhat the pain in the epigastric region, but the skin continued as tense as ever, and patient much in the state indicated above, till the morning of 28th, when I was hurriedly summoned to see her. Found her in labour ; os uteri nearly dilated ; liquor amnii had escaped two or three hours before my arrival ; head presented in the first position, and was expelled in the course of an hour, the pains being good ; cord descended with head. The impossibility of replacing cord, and the continued pressure upon it, must have proved fatal even to a child of ordinary vigour. The vitality of the fœtus appears to have been low ; patient never felt motion, and neither pulsation of fœtal heart nor bruit could be heard, even a fortnight before delivery. Although pains continued strong, head made no progress ; brought down the arms, and used gentle traction, but the body remained immovable. Found, on examination, that the cause of obstruction was distension of abdomen. As pains continued strong, waited for ten or fifteen minutes, in the hope that nature might overcome the obstacle. Head made no advance whatever during that period. Traction was renewed, with one hand on head and the other in the arm-pits, and in about 20 minutes child was extracted. Mother did well."

Dr Keiller exhibited the fœtus, which presented a very large dropsical abdomen, which had evidently been the cause of obstruction in labour.

On subsequent examination, the dropsy was ascertained to have been the result of intra-uterine peritonitis.

THE MEDICAL BENEVOLENT FUND.

In this, an early number of the *Edinburgh Medical Journal*, we feel a peculiar pleasure, and recognize a singular although almost accidental fitness and propriety in noticing the operations of the Medical Benevolent Fund. This journal is devoted, with a single eye, to the interests of the medical profession, and surely, among these the promotion of this scheme may be included. True, it deals not with the high pursuits of science, nor with the useful applications of the art of medicine in practice; it teaches the physician neither how to afford assistance to others, nor to secure any selfish advantage to himself. The medical profession is essentially a benevolent one, and we hesitate not to assert the almost unbounded scope to which extends the private and unheard of charity of its members. It is a common saying that charity should begin at home, and the object of this fund is to obtain, to systematize and to facilitate the benevolent action of the profession towards itself. It would be a work of supererogation to enter upon the advantages of such a scheme, not only to those relieved, but to those relieving. "The giver is more blessed than the receiver." The active benevolence of the profession to its own members, is a solemn duty encumbent upon it, and it is only to be regretted that in Scotland the profession has been so late in adopting any systematic means of pursuing this noble object.

The Fund is intended to relieve all cases of distress in members of the profession or in their families, produced by accidents, illness, old age, or death. A case for which relief is desired must be investigated by two subscribers and recommended to the secretary.

The Medical Benevolent Fund, whose operations are now extended to Scotland, is originally an English institution. It has been arranged that all funds obtained in Scotland should be applied to the relief of Scotch cases, but with a liberality deserving of notice, the board in England has transmitted more money to Scotland than, in the infancy of the scheme, has been raised there. The Fund is also deeply beholden to the generosity of the publishers of this journal, who admit its advertisements to their pages free of charge, and thus become really liberal contributors to it.

We think nothing more is necessary to insure the return of ample subscriptions from all parts of Scotland to the Scotch treasurer of this Fund. Such subscriptions will, we understand, be acknowledged in advertisements in this journal, as well as in the transmission of yearly reports of the whole operations of the Fund. We refer to our advertising sheets, appended to this number, for particulars in regard to these matters.

ENTERTAINMENT TO DR WILLIAM SELLER.

On Friday the 20th ultimo, a party of forty members of the medical profession in Edinburgh and the neighbourhood, entertained Dr Seller at dinner in Granton Hotel. The President of the College of Physicians, Dr Begbie, who was to have occupied the chair on the occasion, was summoned to a professional engagement shortly before the hour of dinner, but his place was supplied by the President of the sister College, Dr Inglis. Dr Alexander Wood, Secretary of the College of Physicians, acted as croupier, and Dr Douglas Maclagan, Professor Miller, and others, proposed the leading toasts. We understand that this gratifying compliment has been paid to Dr Seller, not only on account of his numerous and disinterested public services, but also as a testimony of the warm feelings of regard and friendship, which his upright and honourable, not less than amiable, private character, has secured for him throughout a wide circle of acquaintances. Dr Seller has occupied almost every office in the Royal College of Physicians, including the Chair of the College. He is at present President of the Medico-Chirurgical Society. He has been for many years a manager of the Royal Infirmary. He has at different periods edited the *Northern Journal of Medicine*, the *Monthly Journal*, and the *Medical and Surgical Journal*. In all these positions he has been felt to exercise a most beneficial influence on the medical profession, while he has watched over its true interests with feelings into which nothing selfish or even narrow has ever been known to enter. We join our hearty congratulations to those of his friends on this occasion.

VARIETIES.

Local Appointments.—The Managers of the Royal Infirmary having determined on appointing a surgeon to take charge of the eye-wards in that institution, William Walker, F.R.C.S., Lecturer on Diseases of the Eye, and chief Medical Officer of the Eye Dispensary, was duly elected to that office. The appointment has given much satisfaction. The *clinique* of this gentleman supplies a want which has been long felt, and will prove another source of attraction to our Hospital.

Dr Stark, F.R.C.P., has been nominated Superintendent of Medical Statistics in Scotland, under the new Registration Act.

Foreign Appointments.—The Emperor of Austria has appointed Dr Wenzel Treitz to the Professorship of Pathological Anatomy in the University of Prague; Dr R. Heschl to a similar office in the University of Cracovia; and Dr Willigh to the Chair of Anatomy in the School of Surgery at Olmutz.

By imperial decree, dated July 4th, Dr Natalis Guillot has been nominated Professor (*titulaire*) of Pathology to the Faculty of Paris,—a chair vacant by the death of M. Requin. The other candidates were MM. Monneret and Beau.

M. Cloquet has been elected to the section of Medicine and Surgery in the Academy of Sciences. The seat vacant was that of Lallemand. The contest lay chiefly between M. Cloquet and M. Jobert, the final vote being 27 to 29. The other candidates were Guérin, Gerdy, Laugier, and Baudens.

Natural History Chair—University of Edinburgh.—The following is the letter to the Lord Provost of Edinburgh, intimating the appointment of a Professor to this Chair :—"Whitehall, July 16, 1855. My Lord, I am directed by Sir George Grey to inform you that he has recommended Professor George James Allman, of Trinity College, Dublin, to her Majesty, for the appointment of Professor of Natural History in the University of Edinburgh. Professor Allman has been informed that a question having arisen as to the expediency of dividing the Chair, although this is not intended to be done at present, Sir George Grey wishes that he should take the Chair, subject to any future decision which may be adopted, if it is thought desirable, for this object. I understand Professor Allman is quite ready to accept the Chair upon that condition.—I have the honour to be, etc. "Robert Ellice."

Meeting of the British Association in Glasgow.—Some of the arrangements for the meeting of this Association in Glasgow in September next have been reported to a meeting of the local committee. The funds for the expenses of the meeting were stated to be ample ; several *conversaziones* and excursions were named ; and among other objects of interest, it was mentioned that a local geological museum would be formed, with collections of the chemical manufactures of the west of Scotland. It was also intended to have a photographic exhibition, and one or two salt-water vivaria, exhibiting the marine inhabitants of the Firth of Clyde. A letter was read from Sir Roderick

Impey Murchison, expressing his opinion that the meeting in Glasgow would be the most successful ever held in Great Britain.

Assistant Surgeons in the Navy.—It will give much pleasure to the public to learn that the efforts which have been so strenuously made to procure proper accommodation for this most useful class of the medical profession, have at length been successful, and that henceforth naval assistant surgeons will have separate cabins, together with all the privileges of the ward-room. The order was made on Monday last.—*Morning Herald.*

M. Valleix.—This distinguished physician died of malignant sore throat, on the 12th of July last, after a short illness. His remains were accompanied to the cemetery of Mont Parnasse by a large number of devoted friends. The orations at the tomb were delivered by MM. Barth, Goupil, Latour, and his old master Louis, who was much affected. M. Valleix was a man of great erudition, and intimately acquainted with the contemporary medical literature of England. To strangers he was accessible and polite, and to not a few in this our northern metropolis, his memory is endeared by many acts of friendship. His chief works are—the *Guide du Médicin Praticien*, the *Traité des Névralgies*, and the *Clinique des Maladies des Enfants nouveau-nés.*

Death of Napoleon's last Medical Attendant.—We have to record the demise of Dr Archibald Arnott, H.M.'s 20th Regiment of Foot, in the 84th year of his age. He was Napoleon's last medical attendant.—Dr Arnott entered the army upwards of sixty years ago, and retired from active service in 1826. He served with Her Majesty's 20th Foot, sharing the perils and exploits of that distinguished corps on the Nile, in Calabria, Portugal, Spain, and Holland, and earning a medal with clasps for Egypt, Maida, Vimiera, Corunna, Vittoria, the Pyrenees, Nivelle, Nive, Orthes, and Toulouse. After the war, Dr Arnott accompanied his brave companions in arms to St Helena and India, and at the former station became the medical attendant of Napoleon Buonaparte. His professional ability, ingenuous character, and upright and dignified deportment as an officer and gentleman, at once secured for him the confidence of that extraordinary man, whose good opinion, thus early formed, was strengthened by daily interviews during the progress of his fatal disease, and at last ripened into warm personal attachment and sincere esteem. These sentiments were cordially reciprocated by the physician; and on the part of the illustrious patient were expressed on all occasions by delicate attentions and lively marks of affectionate regard. In particular, shortly previous to his dissolution, Napoleon gave a very interesting testimony of his respect for Dr Arnott, and grateful sense of the warm sympathy and indefatigable zeal with which he had laboured to mitigate the cruel sufferings which no art could heal. To use the words of one then on the island, "The Emperor, on his death-bed, desired that a valuable gold snuff-box might be brought to him, and having, with his dying hand and last effort of departing strength, engraved upon its lid with a penknife the letter 'N.,' he presented it to his kind and valued friend, as a parting memorial of his deep esteem and heartfelt gratitude." Besides which, Napoleon bequeathed to him 600 Napoleons, and the British Government, to mark its approbation of his conduct, conferred on him £500. Dr Arnott's masculine and tenacious mind was to the last richly stored with recollections and anecdotes of the period. These the public would have read with interest, but, except a clear and distinct *Account of the Last Illness, Decease, and Post-mortem Appearances of Napoleon Buonaparte,* published in 1822, he could never be induced to commit them to print, being reluctant to mingle publicly in the keen and painful controversy of the time, although never concealing his opinion in private conversation. From the sphere of public duty Dr Arnott retired to his native parish, and there, on his patrimonial estate of Kirkconnelhall, spent the evening of his days beneficially to the neighbourhood and honourably to himself.

Cheap Microscopes.—The London Society of Arts having offered two prizes for two kinds of cheap microscopes, it has been decided that the instruments sent in by Messrs Field and Co., of Birmingham, fulfilled all the conditions required. The Council of the Society have therefore awarded to that firm the prize medals. One of these microscopes was to be sold for 10s. 6d., and the other, a student's microscope, was not to exceed L.3, 3s. in price.—*Microscopical Journal.*

We are not informed what are the powers or capabilities of the student's microscope here alluded to, but ever since Professor Bennett gave lectures on Practical Histology in 1841, it has been a desideratum to obtain good and cheap microscopes for the medical students of the Edinburgh school. Hitherto this has been done by importing largely the instruments of Oberhauser and Nachot, but we are satisfied that British opticians only require to know what is deemed necessary for the cultivation of science, to enable them to produce even better microscopes than those made in Paris, and at a cheaper rate.

The Physiological Errors of Teetotalism.—In a brilliant article with this title in the current number of the *Westminster Review*, we are informed, that some years ago the public were told that bread was poisoned with gin, and that in consequence, a company was started, for the manufacture of a new kind of bread, free from the danger of causing intoxication. For a while the new company succeeded. But a bold baker opened a shop in opposition, announcing "Bread with the gin in it;" whereupon the British public bought his bread largely, and have continued to eat it, with its contained gin, without injury. "We," says the reviewer, "are about to emulate that baker, and meet teetotalism as boldly as he met the anti-gin bakers;" and thereon he proceeds to demolish Dr Carpenter's work on Total Abstinence, to upset the doctrine that alcohol is a poison and not a food, and to prove (which he does to our satisfaction) that alcohol *is* food, and that use is not the same as abuse.

Touching for the King's Evil.—In the *Public Intelligencer* of 1664 appears the following advertisement:—"Whitehall, May 14th 1664. His sacred Majesty having declared it to be his royal will and purpose to continue the healing of his people for the evil, during the month of May, and then to give over till Michaelmas next, I am commanded to give notice thereof, that the people may not come up to town in the interim, and lose their labour." This practice flourished down to the time of Anne, at whose death it stopped; the sovereigns of the line of Brunswick never pretending to possess this medicinal virtue, coming as they did to the throne by only a Parliamentary title.—*Quarterly Review.*

Monuments and their Builders.—Even the sandstones are, some of them, too hard, especially our own beautiful Craigleith stone, which kills so many masons. I have it on what I believe is good authority, that even a softer stone—the Binny—used in the building of Sir Walter Scott's Monument, has also been known to be very fatal to the masons working it. I am told that, during the building of that monument, which occupied four years, and employed seventy workmen, eighteen died by what they themselves call the mason's trouble. Notoriously, however, this Craigleith stone is the worst of all. The masons themselves, if you talk to them, attribute the mischief to the sulphur in the stone. There is a little sulphuret of iron in the stone, and I fancy, that some of them having heard of this, ascribe the illness to it. But it is not the sulphur that does the mischief. It is more by the very fine irritating sandstone powder. The Craigleith stone, from its hardness and its crystalline character, requires and admits of being chiselled down to a very fine powder, which is thrown into the lungs of the workmen, and there excites an irritation, which, if it does not end in consumption, ends in some disease as fatal. It certainly is a sad thing to think, that Sir Walter Scott's Monument is a monument to eighteen workmen as well as to himself, and that as yet we do not know of any efficacious means of preventing such results, unless by driving away the fine sandstone powder, and by working the stone in the open air. I do not think that moustaches are really of much avail. The notion arises from the German masons wearing beards; but I rather think that the Germans' exemption from the disease arises from their working in the open air, and from their working slowly—far more slowly than our masons do. I am told by the person who has the charge of the heating of the stoves in the Outer Courts here, and who was foreman for some time when the Scott Monument was building, that a man can only chisel 6 linear feet of Craigleith stone in the time he can chisel 15 feet of Binny stone, If that statement be a true one, then the great hardness of the Craigleith stone is brought out in a way that requires nothing from me in reference to the great difference between the one kind of stone and the other. When a hard stone is chiselled, all this fine powder is thrown about, much of which must find its way into the lungs of the hewers, where it cannot but do mischief. The only remedy, if our masons must work under sheds, would be some contrivance for blowing away the dust, as they have in the Manchester cotton-mills, where what they call the fluff is blown away: but you always find the workmen themselves the least willing in such things; for it is well known, that many of the cotton-spinners refuse to work with these fluffers, because they say it makes them hungrier, and costs them more to buy their dinners. And what can they do in such a case?—*Dr George Wilson, in Transactions of the Architectural Institute of Scotland.* Session 1854-55.

SIDNEY SMITH AS A COUNTRY DOCTOR.—"But I came up to speak to Annie Kay. Where is Annie Kay? Ring the bell for Annie Kay." Kay appeared. "Bring me my medicine book, Annie Kay. Kay is my apothecary's boy, and makes up my medicines." Kay appears with the book. "I am a great doctor; would you like to hear some of my medicines?" "Oh yes, Mr Sidney." "Here is the gentle-joy, a pleasure to take it; the bull-dog, for more serious cases; Peter's puke; heart's delight, the comfort of all the old women in the village; rub-a-dub, a capital embrocation; dead-stop, settles the matter at once; up-with-it-then, needs no explanation; and so on. Now, Annie Kay, give Mrs Spratt a bottle of rub-a-dub; and to Mr Coles, a dose of dead-stop, and twenty drops of laudanum. This is the house to be ill in (turning to us); indeed every body who comes is expected to take a little something; I consider it a delicate compliment when my guests have a slight illness here. We have contrivances for every thing. Have you seen my patent armour?" "No." "Annie Kay, bring my patent armour. Now, look here, if you have a stiff neck or swelled face, here is this sweet case of tin filled with hot water, and covered with flannel, to put round your neck, and you are well directly. Likewise, a patent tin shoulder, in case of rheumatism. Here you see a stomach-tin, the greatest comfort in life; and lastly, here is a tin slipper, to be filled with hot water, which you can sit with in the drawing-room, should you come in chilled, without wetting your feet. Come and see my apothecary's shop." We all went down stairs, and entered a room filled entirely on one side with medicines, and on the other with every description of groceries and household or agricultural necessaries; in the centre, a large chest, forming a table, and divided into compartments for soap, candles, salt, and sugar. "Here you see," said he, "every human want before you."—*From "A Memoir" by Lady Holland.*

A THESIS OF THE OLDEN TIME.—The library of the Academy of Medicine of Paris has just received a rich acquisition in the shape of a thesis sustained in the year 1721, before the medical faculty of Montpellier. The author was Fr. Boissier de Sauvages, grand-uncle to the donor, Baron d'Hombre-Firmas, who has reprinted the work from the manuscript in his possession, out of respect to the memory of his illustrious ancestor. The Thesis is entitled DISSERTATIO MEDICA ATQUE LUDICRA DE AMORE, *seu thesis quam pro prima apollinari laureo consequenda tueri conatus est Franciscus Sauvages de la Croix, præside illustrissimo, D.D., Antonio Deidier, sub hac formula: Utrum sit amor medicabilis herbis? Anno,* 1724. With this epigraph from Ovid:—

> Si quis amat quod amare juvat, feliciter ardet;
> Gaudeat, et vento naviget ille suo;
> At si quis malè fert indignæ regna puellæ,
> Ne pereat, nostræ sentiat artis opem.
> DE MEDICO AMORIS.

M. Berard, who presented the work, remarked that it was written in a charming style, and abounded in quotations from Virgil, Horace, and Ovid. More especially it borrowed largely from the two poems, *De Remedio Amoris et Artis Amatoriæ.* These quotations were so very apropos, and introduced with such a happy skill into the text, that they were with difficulty distinguished from the author's style; all appeared as if they had proceeded from the same pen. Sauvages, at that time 20 years of age, gave full promise of his becoming, under the double influence of poetry and medicine, an ardent disciple of Apollo. The disease which he proposed to heal with remedies extracted from vegetables, is not usually comprised in the number of those which physicians recognize as fit subjects of their art. It is well known, however, that Erasistratus discovered the fatal passion which consumed Antiochus, and communicated to the Syrian king an infallible means of saving his son. This indeed is the only instance on record, and the chief of the sect of the Methodists sought not his remedy among plants. Sauvages was one of the warmest partisans of the iatro-mechanical or iatro-mathematical sect, and found it possible in his philosophy to give an explanation of love by the synchronous and isochronous vibration of fibres in a state of greater or less tension. He thus explained how the first incentives of love consisted in the elongation and tension of the fibres of the organs of generation. . . . . *Tenduntur eorum nervi, ex quâ tensione primâ prodeunt amoris irritamenta.* The mathematical demonstration followed with all the A + B precision of a theorem in geometry. The metaphysics of the thesis were based on the same doctrines. After having described love, *morbus ille qui inter puellas et adolescentes serpit, cum delirio circa objectum amatum honestoque intimœ unionis desiderio,* Sauvages passes to the treatment of the malady, and concludes in defiance of his master, *invito Apolline,* that love may be cured by remedies drawn from the vegetable kingdom, *amor est medicabilis plantis.* The thesis is followed by a short analysis of the discussion in the faculty in which Antoine Deidier, Haguenot, and the celebrated Astruc took part. Having presented it, M. Berard besought the librarian to watch over the precious volume with a careful eye, lest some too ardent reader should chance, through absence of mind, to put the seductive thesis in his pocket. —*Séance de l'Academie de Medecine.* April 10.

EFFECTS OF ALCOHOL ON THE CONSTITUTION.—Dr Duchek, in a memoir on this subject, comes to the following conclusions as the result of his observations:—1. Alcohol undergoes within the body a gradual combustion, the products of which are found in the blood. Experiment has shown that alcohol absorbed by the stomach is immediately converted into aldehyde, and this substance combining with oxygen produces acetic and oxalic acids, which are found in the blood after the narcotic effects have disappeared. 2. The phenomena of intoxication are due to the presence of aldehyde in the blood. 3. The action of this substance seems to consist in the rapid abstraction of oxygen from the blood, and the arrest of the nutritive functions by retarding the combustion of other substances within the body.—*Vierteljahrschrift für die Praktische Heilkunde.*

Iron in the Urine and Sweat.—The following are the conclusions come to by MM. Viale and Latini, Professors in the University of Rome, as the result of their investigations:—1. That there is always a certain quantity of iron normally present in the urine, amounting in 24 hours to 0.0558028 grammes; and that there also exists an appreciable quantity in the sweat. 2. That in lat. 41° 53′ 54″ the quantity of iron in the cutaneous secretion amounts in the 24 hours to 0.0512120 grammes, and that in the warmer months of the year an adult male produces, in both secretions, 0.1070148 grammes in 24 hours. 3. That this metal as contained in these secretions is probably combined with manganese, and that the colour observed in certain diseased conditions of these fluids is due to a modification of their constituent principles, consisting chiefly in their transformation from a state of cyanate to that of cyanuret.—*L'Union Médicale,* April 19, 1855.

Yellow Fever.—A nephew of the Great Humboldt has established an hospital at Havanna, to test a theory of inoculation for the yellow fever, on the principle of inoculation for small-pox. The inoculation is followed by a moderate fever and illness of about a week. A number of soldiers have submitted to the process, and some Englishmen and Americans.

PUBLICATIONS RECEIVED.

Braithwaite's Retrospect of Medicine. Vol. XXXI. January to June 1855.
Ranking and Radcliffe's Half-Yearly Abstract of the Medical Sciences. Vol. XXI.
Griffith's Universal Formulary. By Dr Thomas, Philadelphia. (From Trubner and Co.)
Psychological Medicine. By Daniel Noble, M.D. 2d edition. Enlarged.
A Manual of Clinical Medicine and Physical Diagnosis. By T. H. Tanner, M.D., London.
On Diseases of the Rectum. By T. B. Curling, Surgeon to the London Hospital. 2d edition, etc. etc.

PAMPHLETS.

Observations on the Life, Disease, and Death of John Hunter. By Joseph Ridge, M.D. (the Hunterian Oration).
On the Re-organization of the Medical Department of the Army. By Philo-Medicus. London.
On Petit's Operation, and on Purgatives after Hermistomy. By J. S. Gamgee, Esq. London.
On Avidian Monsters. By J. S. Gamgee, Esq. London.
A Letter to Sir Benjamin Hall, Bart. By John Snow, M.D.
Harrogate, and its Resources, a Report. By A. W. Hoffmann, F.R.S.
De la Matiere Organique des Eaux Minerales de Vichy. Par Dr Ch. Petit. Paris.
Annual Reports of the Royal Asylum, Morningside, and of the Crighton Assylum, Dumfries. 1854.
Twelfth Annual Report of the State Lunatic Asylum. Albany, 1855.
Seventh Annual Report of Chinese Hospital at Shanghae, for 1853.
On Protracted Valvular Disease of the Heart. By J. W. Corson, M.D., New York.
Cholera, and its Causes. By F. H. Hamilton, M.D., Buffalo.
Anaplasty applied to the Treatment of Old Ulcers. By F. H. Hamilton, M.D., Buffalo.
Address to Graduates in Medicine at Buffalo University. By F. H. Hamilton, M.D., Buffalo.
Fracture Tables. By F. H. Hamilton, M.D., Buffalo.
On the Employment of Water in Surgery, from the French of Amussat. By F. H. Hamilton, M.D., Buffalo.
Harvard University. Announcement of Medical Lectures. Bye-Laws and Regulations of the Boston Lying-in Hospital, etc. etc.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*Cases illustrative of the Operation for Femoral Hernia.* By James Spence, F.R.C.S., Lecturer on Surgery, and Surgeon to the Royal Infirmary, Edinburgh.

The following cases and remarks were intended to have been published along with that of H——, in the July Number of the *Journal*, as a series illustrating various points connected with the operation for Femoral Hernia, but the space occupied by the details and remarks on that case rendered it necessary to delay the publication of the remaining cases till the present number:—

Case I.—Christian A., æt. 72, residing in Dalkeith, first noticed a swelling in the groin on the morning of Sunday, 17th September 1854. During the day she was sick and much pained, and in the afternoon felt a strong desire to have motion in the bowels, which was accompanied with severe straining, but without any evacuation. She took some brandy to relieve the colicky pains, and then a dose of castor oil; shortly after which, vomiting commenced, and continued for some time. At 3 a.m. on Monday, she had another attack of vomiting, which was followed by an interval of comparative ease, until 3 p.m., when the pain and vomiting increased in violence. She sent for Dr Thomson late in the evening, but made no mention of the swelling. A purgative was ordered, and an enema directed to be given.

On Tuesday Dr Thomson found that the vomiting had become more frequent, and that the medicines had not acted; he then examined for, and detected the femoral hernia, and tried to reduce it whilst she was under the influence of chloroform, but did not succeed. In the evening her countenance was anxious, and she was restless, but the pulse not much affected. The vomiting had become feculent.

On Wednesday morning Dr Thomson was told her bowels had been moved, but without any relief, and, on examining the stool, it was evidently from the lower bowel. I saw her with Dr T. about 3 p.m. on Wednesday; her features were sharp; pulse quick and small; abdomen distended; the tumour tense and painful, and the skin over it was of a dusky colour. The matter vomited was evidently feculent, and she had occasional attacks of hiccough. Under these circumstances I made no attempts at reduction, but proceeded to operate after the administration of chloroform. On exposing the sac I found the textures infiltrated with inflammatory exudation, and matted together. The neck of the sac was very tightly constricted, and I required to use great caution in opening it, as there was no fluid between it and the bowel; indeed, they were adhering at some points by recent lymph. The bowel was very dark, of a dull granular appearance, and very tightly constricted. On dividing the stricture I drew down the bowel above it, and finding it of a natural appearance, I reduced the protrusion, and dressed and bandaged the wound in the usual way. Dr Thomson informed me that the urgent symptoms were relieved by the operation, and that the patient speedily recovered.

Case II.—Mrs W., æt. 64, of spare habit of body, and long subject to dyspepsia, sent for Dr Maine of Gorebridge on the 2d of November 1854, stating that she had been suffering from an attack of pain in the stomach, and had vomited twice. As she was subject to frequent attacks of vomiting, this did not attract special attention, until next morning, when Dr M., finding that she had passed a bad night, that her bowels had not been opened, and that the vomiting had been more frequent, examined for, and detected a femoral hernia. She had been long aware of the existence of the swelling, but thought it of no consequence, as it used to go away of itself. Dr M. tried reduction by taxis, but without success; and as she had vomited some stercoraceous matter, he gave her an opiate, directed cold to be applied to the swelling, and sent for me to visit the patient. It was late in the evening before I saw her; she was then much exhausted with the vomiting and pain; pulse quick and small; skin covered with cold perspiration, and great pain in the abdomen.

I put her under the influence of chloroform, and exposed the hernia by a T incision. From the severity of the symptoms, and the doubt as to how long the hernia might have been strangulated prior to her applying for medical aid, I determined to open the sac. As there seemed to be a little fluid at the lower part, I pinched up and opened the sac at that point, and exposed a portion of bowel of a very dark colour. On trying to pass my finger, I found the sac connected to the bowel, by old adhesions, over its whole surafce, so as to prevent even a thin flat director from being passed at any point, and this adhesion considerably lower than the seat of strangulation; I therefore proceeded to divide the falciform process and lower crural arch fully, so as to open the sac in the femoral canal above the constriction, and then divide it from above downwards. In doing so, when I had divided the textures over the neck of the swelling, it became flaccid, and was so evidently relieved, that I returned the adherent portion of the sac and bowel together.

I did not see the patient again, till she came to town to get a truss fitted; but I am indebted to Dr Maine for the following report of the case:—

She passed the first part of the night very comfortably. Early in the morning she became cold, sick, and uneasy, but no pain in the abdomen; pulse very weak and indistinct. An opiate was given, and a little wine and beef-tea tried occasionally. In the afternoon she was greatly better; pulse much improved. Opiate was repeated at bed-time, and a dose of castor oil directed to be given in the morning, followed by an enema of warm water, if necessary. On the third and fourth days after the operation, she had a little pain and tenderness over the abdomen, with tympanitis, which was relieved by opiates, sinapisms and fomentations to the abdomen, and a turpentine enema. With this exception, she recovered without any bad symptoms. The wound healed rapidly, and she regained a better share of health and strength than before the operation.

Case III.—Margaret C., æt. 50, had suffered for many years from prolapsus uteri. She first noticed the rupture about fifteen months before I saw her, and had always been able to put it back when she lay down. On the 4th of January 1855, she was seized with violent pain in the belly, and vomiting, which she attributed to obstinate constipation. The vomiting and pain continued to increase in violence until the morning of the 6th. Dr Middleton was then sent for, and attempted to reduce the hernia, but without success.

At 2 P.M. I visited the patient, and having tried reduction by taxis ineffectually, I proposed an operation. Accordingly, at 4 P.M., I saw her, along with Drs Middleton and Thomson, and proceeded to operate, after chloroform had been administered. On dividing the skin and superficial fascia, a hernial tumour was brought into view, tilted upwards on the abdomen. On drawing down the tumour it was seen to be shaped somewhat like an inverted T. The perpendicular portion or neck descended from below the falciform edge. The outer end of the transverse or lower part had been tilted up, and rested on the abdomen, and the inner end projected over and rested upon the pubic portion of the fascia lata. On dissecting through the fascia propria which invested it, I found that the internal part of the transverse portion was not truly hernial, but a mass of dark congested glands, closely adherent to the inner and lower part of the sac. I then opened the sac, which required some care, as it contained no fluid. The bowel was of a dark purple colour, dull and granular on the surface, with recent lymph effused between it and the sac at different points. On dividing the stricture, I drew down and examined the bowel above it, and finding it healthy, and free from any appearance of ulceration at or above the constricted part, I gently returned the protrusion, and cut away the part of the sac to which the congested glands were adherent; then closed the wound, bandaged the patient in the usual manner, and directed an opiate to be given. Contrary to my expectations, from the state of the constricted bowel, no bad symptoms supervened, and the patient made an excellent recovery.

Case IV.—Mrs D., æt. 55, had been the subject of a large uterine tumour for many years, and had first noticed a swelling on the left groin about seven or eight years ago. This swelling she could reduce at pleasure when it came down, but she had never worn a truss for it. For the last three months she has been suffering much more from it than formerly, and has had frequent attacks of vomiting and constipation, accompanied with great pain in the swelling.

On Friday, April 6th, she was seized with one of these attacks, presenting all the usual symptoms, but with more than usual severity. I was asked by Dr Alexander to visit her on Sunday, April 8th. When I first saw her, she had frequent and severe vomiting, much pain and tenderness over the abdomen generally, and the swelling was hard, tense and extremely painful. Having tried reduction by taxis without success, I directed the turpentine enema which had been already given, to be repeated, and returned, with Drs Alexander and Struthers, at 8 p.m. We then found that no feculent matter had been brought away by the injections, and that all her symptoms were aggravated. The taxis having again failed, even with the aid of chloroform, I at once proceeded to operate. After dividing the skin, superficial fascia, and a considerable quantity of fat, a small oval tumor was seen, lying about an inch below the falciform process, and enveloped in thin, smooth, and glistening membrane.

On opening this there was found a mass of fat, and on dissecting cautiously through the fat, and removing part of it, I exposed a very dark, rounded swelling, about the size of a small cherry; it felt firm and hard, and on trying to trace it up towards the femoral ring, I could feel no distinct neck.

I divided the falciform process freely, but still failed to detect any swelling continuous with the lower protrusion. I accordingly very carefully pinched up a part of its outer covering, and cut out a small portion of it; then, by means of dissecting forceps, separated it a little more, and exposed a portion of intestine of a very dark purple colour; on gently insinuating a narrow flat hernia director between the gut and the sac, I found that the neck of the protrusion passed obliquely upwards and outwards close along and apparently within the proper sheath of the common femoral vein. The sac was slit up, and the finger introduced to the constriction, which was then divided upwards and inwards with the probe-pointed bistoury. I drew down and examined the bowel. The small knuckle contained in the sac was very dark—almost black; the part above the constriction I found tolerably healthy, but adherent within the abdomen near the outer side of the femoral ring. The protruded part was then easily reduced and the operation completed. No bad consequences followed, and the patient made a rapid recovery.

Case V.—On the 29th April last, I was requested by Dr Middleton to visit Mrs B., who was suffering from the descent of a femoral hernia, which had resisted reduction by taxis. I found that the patient, a woman about 80 years of age, had a small femoral hernia on the right side, which she stated had occasionally troubled her for some time past, but was usually readily reduced by pressure; that on the present occasion she had felt it more painful than formerly, and, being unable to reduce it, had applied to Dr Middleton. Dr M. told me that he had tried the taxis, but without making any impression on the tumour, and, as he felt it tense, he did not persevere, especially as vomiting had set in. Her pulse was good, not above 80 in the minute, and there was no great tension of the abdomen. As the integuments over the swelling were red and tender from pressure, I thought it best to apply cold over the tumour; directed her to abstain from all further attempts to reduce it; ordered a distending enema to be given, and made an appointment to see her in about three hours, to try reduction when she was under the influence of chloroform, and if not then successful, to operate. I again visited her with Dr M. at the time appointed, when I found an evident change for the worse; her features sunk and anxious, more pain and tension of the abdomen, frequent vomiting, and a small rapid pulse. The enema had brought away no feculent matter. The tumour, though less tender, owing to cold applications, was still hard and tense. I therefore told her that possibly an operation would be requisite, if we could not return it with the aid of chloroform, but she absolutely refused either to take chloroform, or allow anything to be done, notwithstanding everything we could say to show her the danger she was in. We therefore told her son that we considered the operation as her only chance, and, having obtained his consent, we administered chloroform. I tried the taxis, but the swelling was so evidently tightly constricted, that I did not persevere long, but proceeded to operate. On dividing the constricting textures, external to the sac, I found the hernia still constricted, and therefore opened the sac, which proceeding required much care, as there was no fluid between it and the bowel. The intestine contained in the sac was of a very dark colour, and on dividing the stricture, and drawing down the bowel, I found it deeply indented; it was then reduced, and the patient dressed and placed in bed. There was scarcely any bleeding during the incisions. An opiate was given. Next day I found she had passed a good night, the vomiting had ceased, and there was no abdominal pain; pulse 86. Her bowels were freely opened next day, and she continued to progress very favourably for the first 18 days after the operation, only very peevish and restless, and complaining of pain on the opposite side. On calling one day, I found her by no means so well, and the wound discharging very freely. On examination, I felt an abscess over the left side of the pelvis, near the left spine of the pubis, from which matter could be pressed towards the wound, but she would scarcely allow me to feel it, far less would she listen to the proposal of opening the abscess. I therefore directed poultices to be applied, and her strength supported by wine and diet. Under this treatment she continued to improve, the abscess opened its way to the surface, over the left side of the pubis, and discharged freely for some time, both there and by the wound; but the discharge gradually decreased, and now (15th June) it is of very small amount, both openings are contracting, and her appetite and general health are good. Aug. 6. She is now quite well.

Case VI.—Elizabeth C., æt 50, farm-servant, admitted into the Royal Infirmary, Jan. 30, 1855. First noticed a slight swelling in the left groin in October 1854, which gave her little pain or inconvenience, except after unusual exertion, and at times the swelling entirely disappeared. While walking, on Monday, Jan. 29, she felt great pain in the tumour, which was followed by sickness and vomiting, with constipation. Dr Maine of Gorebridge was sent for, who, finding the hernia could not be reduced by taxis, recommended her to my care, in the Royal Infirmary. She was admitted on Tuesday the 30th, when the operation for strangulated femoral hernia was performed, about midnight. The stricture was exposed, and readily divided without opening the sac, and part of the hernia was easily returned; but as there still remained a portion of the contents irreducible, I considered it right to open the sac, to make sure of the state of the portion that remained. This I found to be a round and thickened mass of omentum, adherent to the sac, and removed it by the knife. The wound was dressed in the usual way; no bad consequences followed the operation, and she was dismissed cured, March 7, 1855.

Case VII.—Elizabeth L., æt 45, admitted into Hospital April 16, 1855. The patient states, on admission, that she has had a rupture for many years: she could always reduce it easily until eight days ago, when all her attempts to do so failed. On Friday evening, April 13, she felt considerable uneasiness in the belly, with nausea, and took some purgative medicine, which acted pretty freely on the bowels, but without much relief to the abdominal symptoms. The uneasiness and pain increasing, and being unable to return the swelling, she applied on Sunday to Dr Somerville, who, failing to reduce it by taxis, requested me to see her, on Monday, April 16. I found her restless, with anxious expression of countenance, rapid pulse, and great nausea; pain over the abdomen on pressure, and great pain and tenderness over the hernial swelling, which was tense, hard, and, red. I therefore had her sent to the hospital, where I again tried the taxis whilst she was under chloroform, but did not succeed. The operation for strangulated femoral hernia was therefore immediately performed. When the sac was opened, it was found to contain only a piece of tightly strangulated omentum—this being a case, therefore, of purely omental hernia. The strangulated piece of omentum was extremely congested, and almost gangrenous; its recovery being doubtful, I removed it by the knife. The wound was dressed and bandaged in the usual way; an opiate was ordered, and also a mixture, containing hyoscyamus and acetate of ammonia. On the third day after the operation she complained of pain in the right lumbar region, which was removed by leeching. On the fourth day the bowels were moved by injection, for the first time since the operation. Her recovery was complicated, by a pretty severe attack of dysentery, and by frequent bilious diarrhœa, but she is now quite well.

Remarks.—The first five of these cases form a group having some features in common. The patients were all females, debilitated either by old age or by previous disease. The general symptoms present, the length of time these had existed, the tightness of the stricture, the morbid alteration in the constricted portion of bowel in all, and the feculent vomiting and hiccough in some of them—were elements for an unfavourable prognosis; and yet in none of them did any unfavourable symptoms supervene.

In a former series of hernia cases, published in the *Monthly Journal*, I had occasion to contrast different cases, and to remark on the difficulty of prognosis from the appearance of the constricted portion of intestine; but experience leads me to believe, that examination of the state of the bowel immediately above the constriction may form a criterion. If it be of a pale reddish-grey colour, and feel thick and fleshy, the chances are in favour of a successful result, the constricted portion will be likely to recover itself when replaced.

On the other hand, if the bowel above the constriction be of a bright pink colour, appearing thin and as if distended with air, and bedewed with a clammy exudation,—and if there be a large escape of red or dark-coloured serous fluid from the abdomen on dividing the constriction,—the prognosis is most unfavourable, as indicating that peritonitis has commenced, or that structural alteration is proceeding, in and beyond the constricted portion.

The practice of gently drawing down and examining an inch or two of the bowel above the constriction, is advisable, I think, in all cases where we open the sac, both because it ensures that the constriction is fairly removed, and, by allowing the protrusion to be emptied of its contents, renders its reduction more easy; but it is specially necessary where the constriction has been of long duration, for in such cases perforation not unfrequently occurs from half-an-inch to an inch above the constriction. I have in my possession three preparations showing this state in cases of femoral hernia where the patients died without being operated on, and I need hardly remark what would be the result of returning a portion of bowel either actually perforated or about to sphacelate.

Some of the cases narrated also present individual peculiarities deserving attention. Thus, in Mrs W.'s case, we find a condition showing the necessity for constant caution in every case of herniotomy, however simple the case may seem; for here, when the lower part of the sac was opened over the collected fluid, had I, without further examination, attempted to run the bistoury upwards to slit it open, the bowel, from its close adhesion above, would almost certainly have been injured, and this has actually happened in similar cases.

In Margaret C.'s case, the congested lymphatic glands adherent to the sac, and enveloped in the thin, smooth, transparent fascia propria, had very much the appearance of the sac itself. I have met with several such cases where the deep glands were thus closely adherent to the sac; and in all of them where I had to open the sac, I have pursued the plan I adopted in this case, viz., removing the detached portion of the sac together with the adherent glands; because, in such cases, the dissection necessary to expose the sac has generally so injured the vitality of these structures that they are almost certain to slough, or to lead to tedious suppuration, and so I think it best to obviate such consequences by at once removing what would prove a source of irritation, and I have never seen any reason to regret having done so.

In Mrs D.'s case, there was some little obscurity as to the nature of the swelling, as her history of it was by no means clear. She had for years suffered from a large uterine tumour, and was subject to attacks of vomiting and abdominal pain; and as may be supposed from the condition of the hernial tumour, as seen during the operation, its character was not very distinct. It was possible it might be a glandular swelling connected with the uterine disease; and I confess that, during the operation, when I could not trace the continuity of the small swelling up towards the ring in the usual position, I began to suspect such might prove to be the case, especially as I knew of a very similar case where that had been found concurrent with all the symptoms of strangulated hernia. Still, the rule of practice was clear, and accordingly I proceeded, by careful dissection, to make sure of the nature of the small tumour.

In the case of Mrs B., the abscess which formed subsequent to the operation, though a serious complication in a person at her advanced age, could scarcely be regarded as a consequence of it; for there were no extensive incisions, nor interference with the parts, during the operation, likely to lead to the formation of matter. Besides, it occurred eighteen days after the operation, and on the opposite side of the abdomen; and although it ultimately partly discharged itself by the wound, that was only owing to the pus meeting with less resistance in that direction, and to the patient's obstinacy in not allowing the abscess to be opened.

In opening the sac in Mrs C.'s case, after having reduced a part of its contents, I proceeded upon a principle which I hold as essential to safety in performing the extra-peritoneal operation, viz., that the surgeon should satisfy himself that the sac is fairly emptied of its contents; and that, when any part of the hernia cannot be so reduced, the sac should be opened to make sure of its condition. For whilst I think that, in recent cases, when we can readily reduce the hernial protrusion without opening the sac, it is well to avoid further interference; on the other hand, I do not apprehend so much danger from opening the sac, as some do, and, at all events, it is never to be compared with the risk of leaving any portion of such a hernial protrusion unreduced and unexamined.

Indeed, I think that the dangerous form of peritonitis we meet with in cases of hernia, is most generally antecedent to, rather than consequent on, the operation; and from all I have seen of *post mortem* examinations of such cases, I believe that it depends upon inflammation arising at the constricted part, and thence diffusing itself generally. I have seen fatal peritonitis, from this cause, follow an operation where a recent femoral hernia was reduced with great ease, without opening the sac; and I have at present a case of inguinal hernia, which bears on this point. When first called to see the man, he was labouring under urgent symptoms, depending on a large scrotal hernia, which had been down for twenty-six hours, and had resisted all efforts to reduce it by taxis. I succeeded in reducing it, however, with the aid of chloroform; but this was followed by an attack of acute peritonitis, requiring leeching, calomel, and opium, etc., to subdue it. A few weeks after, when able to go out, he left off the truss for a short time, and the hernia again came down; urgent symptoms supervened, and, although I saw him early, all my attempts to reduce it by taxis were vain. I was obliged to operate; and naturally fearing a tendency to peritonitis, and also on account of the size of the swelling, I was anxious to avoid opening the sac; but this I found impossible, as the stricture was evidently in the neck of the sac itself. I therefore opened it, and yet the patient, who is now quite well, never had the slightest symptom of peritonitis after the operation.

The case of Mrs L. was one of purely omental hernia, which, as its history shows, had slowly progressed from incarceration and congestion to complete strangulation ; and the removal of the all but gangrenous mass of omentum seemed to me the safest proceeding, when I considered the little vitality of the fatty texture and the small chance of its recovering itself, the great risk of gangrene occurring in and spreading from it, and the consequent danger of inflammation of the omentum, and general peritonitis.

In reflecting on the complications met with in such cases as that of Mrs D. and others, narrated in this series, and which I have so frequently met with in cases of femoral hernia, both in my own operations, and seen while assisting other surgeons, it has always seemed to me, that if one thing was more essential than another to the safe performance of herniotomy, it was that the incisions should be so placed as fairly and fully to expose the structures over the neck and upper part of the protrusion at least, and in small herniæ, the whole tumour, whether the sac was to be opened or not, so that the operator might make quite sure of the removal of all constriction, and of the gradual and complete reduction of the contents of the sac; or, in the event of difficulties occurring, that he might be able to judge of the state of parts, and to *see* what he was doing. Accordingly, I have never been able to appreciate the supposed advantages of the plan of operation proposed by Mr Gay, which has for its avowed object the division of the stricture without exposing any part of the protrusion or its proper coverings, by means of a small incision made at some little distance from its upper and inner side, approaching almost to the principle of subcutaneous division of the stricture.

This plan appears to me the most hap-hazard method that can well be imagined ; and I confess I was greatly surprised to find, from some remarks in a paper by Mr Ward, that surgeons of such experience in herniotomy as those of the London Hospital, should have adopted it. Professor Fergusson, in his "Practical Surgery," likewise eulogizes the plan ; but any one looking at the direction of the incision, as represented in his work and that of Mr Gay in the original memoir, will see there is a difference even in that respect ; and that he does not carry out the more objectionable principles of Mr Gay's method is obvious, I think, from what he says when speaking of the question of not opening the sac in hernia : "In many I have found it answer admirably ; but in others, even after the stricture had been divided, I have, probably from an old and bad habit, felt that, without opening the sac, I could not be satisfied, and have therefore done so, occasionally with advantage, and never, that I could perceive, with any material difference of hazard to the patient." A safer plan, and one requiring more exposure of the hernia than inculcated by Mr Gay.

ARTICLE II.—*On the Os Sacrum considered as forming part of the Vault of the Pelvis, and on its Function in the Development of the Lateral Expansion of that Cavity.* By J. MATTHEWS DUNCAN, M.D., Lecturer on Midwifery, Edinburgh, etc.

(*Continued from p.* 120.)

4. *MM. Dubois and Gavarret's Theory of the causation of the regular development of the Pelvis.*

THE only theory of the lateral development of the pelvis, of which I am aware, is afforded by M. Dubois, and is founded upon a study of the changes induced in the shape of the pelvis by the absence of the sacro-iliac joints on one or on both sides. I shall translate into English M. Dubois' own words on the subject.[1]

The arrangement of the pelvic articulations "has a consequence very worthy of notice and much less known, it is that of favouring the regular evolution of the pelvic cavity.

"When under the influence of a malady, before or after birth, one of the sacro-iliac symphises is affected with ankylosis, and in consequence the solution of continuity disappears, the innominate bone, corresponding to this alteration, is flattened at the side of the pelvic cavity; the innominate line, in place of offering the normal curvature which I have described, forms a line almost straight from before backwards, which contrasts with the naturally curved form of the innominate line of the opposite side. This kind of alteration, limited to one of the sides of the pelvis, where one only of the sacro-iliac symphises is ankylosed, is formed symmetrically on both sides when the symphises on both sides are ossified.

"I think that the ossification of the symphises, and the consequent disappearance of the solution of continuity in the points where it existed, and where it deadened any shock, take the greatest part in the deformity under discussion, for a similar cause is followed by similar results in other parts of the skeleton; it is thus that the ankylosis of the very slightly moveable articulations of the bones of the skull, and, in particular, of one of the squamous sutures, is followed by a marked flattening of the cranial vault in the part corresponding to the union; the museum of pathological anatomy of the Faculty of Medicine of Paris contains a remarkable example of this; and M. Nægele has doubtless alluded to deformities of this kind, after an interesting observation of Tourtual (*Des Principaux Vices de Conformation du Bassin et Specialement du Rétrécissement Oblique*, par Fr. C. Nægele, traduit par A. C. Danyau, p. 85); my colleague and friend however, Professor Gavarret, thinks that the regular development of the pelvic cavity results essentially from the wedgelike arrangement of the sacrum interposed between the innominate bones, and that if the lateral regions of the pelvis, flatten in some sort under the weight of the body when one of the sacro-iliac symphises is ankylosed, and *a fortiori*, when they are both so, this effect results principally from the ankylosis making the sacrum lose the form and, consequently, the mechanical attributes of the wedge.

"I owe to his kindness the following formula, which will clearly explain his idea, as far as regards the physiological action of the sacrum in the normal state of its articulation with the innominate bones, and also the pathological phenomena which result from the contrary state :—

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[1] *Traite Complet de l'Art des Accouch.* I Livr. p. 34.

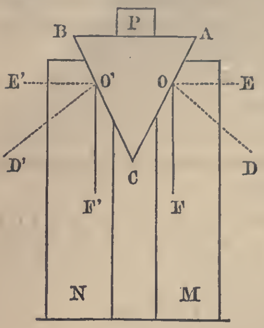

Fig. 3.

" Suppose a wedge ABC transmitting a force, represented by weight P, to two supports M and N, the force exerted by the weight P is decomposed into two OD and O'D', perpendicular to the surfaces of contact of the wedge and of its supports. In their turn the forces OD and O'D' are each decomposed into two. (OE and OF for OD) (O'E' and O'F' for O'D'). Finally, the total force of the weight P, transmitted by the wedge, is replaced by four forces: 1st, two of these last forces OF and O'F' are vertical, and form in reality the vertical weight which the supports M and N have to bear; 2d, the remaining two last forces OE and O'E' are horizontal; these last do not in any way affect the supports M and N, but tend only to separate them from one another.

" *Application to the Pelvis.*

" 1st, *Normal Condition.*—The sacrum is a true wedge, which transmits to the innominate bones the weight of all the upper part of the body. It follows that the weight supported by the sacrum, at the moment when it is transmitted to the iliac bones through the sacro-iliac symphises, is decomposed into four forces, as follows :—

" (1.) Two vertical forces, which constitute all the weight which the femurs have to support, this weight is necessarily less than that supported by the sacrum itself.

" (2.) Two horizontal forces which do not influence the femurs, but tend only to push the innominate bones from within outwards, to separate them from the median line.

" When then, in the course of the development of the young subject, the transverse diameter of the pelvis tends to increase, this is what happens :—1. the iliac bones are pressed vertically by the heads of the femurs, and this force resists the enlargement of the pelvis ; 2. but the two horizontal forces which the sacrum exerts upon the iliac bones, tend to separate them from the median line; it is in virtue of these two forces that the two heads of the femurs are separated from the median line, and the enlargement of the pelvis becomes possible.

" 2d, *Pathological Condition.*—Suppose the two sacro-iliac symphises ankylosed, the sacrum no longer acts as a wedge, the weight of the body is transmitted entirely to the femurs in a vertical direction.

" Then, when the development of the osseous system is being completed, the heads of the femurs will retain the innominate bones in their relative position without there being anything able to counterbalance their vertical force; in consequence, the enlargement of the pelvis may easily happen in an ante-posterior direction, but it will be completely impossible in a transverse direction.

" It is easy to see what would happen if only one sacro-iliac symphisis were ankylosed ; in this case, the enlargement of the transverse diameter would be possible only on the side opposite the ankylosed sacro-iliac symphisis. Further, the antero-posterior enlargement taking place as usual, it is evident that the symphisis pubis should be displaced and carried towards the side of the healthy sacro-iliac joint."

This ingenious explanation, by Gavarret, of the mechanical action of the sacrum, and specially of its function in the lateral development of the pelvis, is founded entirely upon the supposed analogy, in form and function, of the sacrum to a wedge. Having already taken some pains to show that the sacrum can have no important action as a wedge, it may be considered a work of supererogation to show that the theory of Gavarret, founded as it is upon this false hypothesis, must itself also be insufficient and false; but a short discussion of it will be useful. Before touching the subject proper, I shall just notice one very evident mechanical error made in the reasonings of Dubois and Gavarret. This error consists in supposing that the force of a weight acting vertically is not all transmitted downwards, but, when resolved into two forces, is diminished in the vertical direction to an amount equal to that transmitted in directions not vertical. Thus, in the quotation given, it is said that the "two vertical forces which constitute all the weight which the femurs have to support, are necessarily less than that supported by the sacrum," because the weight supported by the sacrum furnishes "two horizontal forces which do not influence the femurs." Again, it is said, in a form converse of the former, that "suppose the two sacro-iliac symphises ankylosed, the sacrum no longer acts as a wedge, the weight of the body is transmitted entirely to the femurs in a vertical direction." These statements are equivalent to the assertion that the weight of a man's body is not all transmitted to his femurs when the sacro-iliac joints exist, but is so when they are ankylosed, or that a man standing in the scale of a balance would weigh less when his sacro-iliac joints are not ossified than when they are, *cæteris paribus;* which is absurd.

The following argument, apart from any other, is sufficient to show the erroneous character of the theory of Dubois and Gavarret. That theory is evidently founded upon a study of the circumstances of the oblique pelvis of Nægele. After applying it to the development of the healthy pelvis, they make it explain the oblique pelvis. In this last they point out, that from the ossification of the sacro-iliac joint on one side, that side loses the developing or horizontal force from the wedge-like sacrum, and therefore remains flat during life. They add, that on the healthy side, the developing or horizontal pressure of the sacrum produces the normal rounding and expansion of that side of the pelvis. But this case of oblique pelvis, which is at once the source and the test of their theory, does really militate against it, and overthrow it when rightly considered. For, it is evident that, when the sacro-iliac joint of one side is ankylosed, the pelvis should be flat on both sides. The ankylosis on one side destroys the wedge-like form and function of the sacrum on both sides. By an incomprehensible neglect, the authors named have argued as if the sacrum were still a wedge, after it was ankylosed to the ilium of one side. When it is so, we find that the iliac bone of the opposite side is naturally developed. It cannot be so from any wedge-like action of the sacrum; we must therefore seek for another explanation.

Another circumstance shows this wedge theory to be untenable. On the supposition that the sacrum acts as a wedge, we should expect to find the ilia most separated at their points of contact with the sacrum, or where the whole supposed horizontal force of the sacrum is exerted. The fact that this is not the case, appears to me to be fatal to the theory. Every anatomist must know that, in a well-formed pelvis, the brim is larger or more expanded in front of or below the sacro-iliac symphises than at them. This cannot be the result of wedge-like action of the sacrum, which should tend to produce a contrary result, to which the force applied at the acetabula would also powerfully contribute.

Other questionable points in the theory, as stated in the quotation from Dubois, given above, might easily be pointed out; but as their discussion would only tend to confuse my remarks, I shall omit their consideration.

It is only fair to notice, that although the wedge theory of the action of the sacrum is erroneous, yet science is indebted to MM. Dubois and Gavarret for first attracting attention to the sacrum as probably the chief element in the mechanical arrangements for ensuring the natural development of the pelvis. They have also, by their example, directed the attention of physiologists to the study of the oblique pelvis of Nægele, as an invaluable aid in this investigation. It is this study that has revealed to us the importance of the joints of the pelvis. Hitherto they have been chiefly regarded as affording security against fracture of this bony circle, and as assisting to overcome the evil influence of shocks transmitted from below to the spine and brain. The congenital absence or disappearance, during early life, or period of development, of one or other, or both of these joints, as happens in cases of oblique pelvis, is a crucial experiment performed by nature, to lead us to recognise still further the value of these joints, and to point out their presence as an essential element in procuring the natural development of the pelvis.

5. *The Author's Account of the Causation of the Regular Development of the Pelvis.*

Having, in the last section, shown that the wedge theory of the action of the sacrum is rather inconsistent with, than explanatory of, the natural development of the pelvis, and that it also fails to account for the production of oblique deformity of the pelvis in those cases where a sacro-iliac joint has been absent during the development of this part of the skeleton, we proceed to state briefly the natural and simple views on this subject, which at once spring from the observation of the mechanical relations of the sacrum, as we have described them. These views will be found to afford an easy explanation also of the oblique deformity of Nægele, a circumstance which reflects no inconsiderable confirmatory evidence upon them.

One of the chief characteristics of the pelvis of the infant, or very young person, is its small transverse dimensions, compared with the antero-posterior, and the flatness of the sides of the cavity. "The parallelism of the lateral, as well as the anterior and posterior pelvic walls, is, I think, sufficiently marked and general to be considered as a characteristic of the conformation of the infant pelvis, as we shall find it to be of that of most of the lower animals, giving to it a square-sidedness."[1] Describing the pelvis of the infant at birth, Velpeau says, "its transverse diameters are much shorter than its antero-posterior."[2] As compared, in these particulars, with the youthful pelvis, that of the adult presents characters quite the reverse. The transverse diameters of the pelvis are then the largest; the sides of the pelvis, instead of being flat, are beautifully curved outwards, the greatest curve being in the iliac or cotylo-sacral beam, near the sacro-iliac articulation. These great changes take place during the growth of the pelvis in youth. They are undoubtedly partly produced by the increased transverse dimensions of the sacrum in the adult, but only partly, for this will not account for the changes in the shape of the pelvis.

During the whole period of growth, while the pelvis is increasing in size, and while its joints are still comparatively loose, and the bones not solidified or consolidated, it has ever and anon, in standing, walking, etc., etc., to undergo pressure from two great forces; the one, that of the weight of the body transmitted to the sacrum, and from it to the posterior iliac tuberosities, or upper ends of the iliac beams; the other, the reacting pressure of the same force, transmitted from the femurs to the acetabula, or lower ends of the same iliac beams. Both of these forces tend, as already pointed out, to drag the extremities of these beams in a direction, more or less, towards the centre of the pelvic cavity. This tendency is counteracted by the resistance of the sacrum, which is interposed, like a fulcrum, between the two forces. The power applied to the upper end of the iliac beam (A) will always tend to throw the lower or cotyloid (C) end outwards, and thus to increase the lateral diameters of the pelvis. This tendency is counteracted by the pressure on the other extremity, the cotyloid end of the beam. The natural result, then, will be, that the beam will be bent at the fulcrum, or auricular surface of sacrum (E). This bending produces the curve of the side of the pelvic cavity. The power applied at the cotyloid extremity of the beam has a leverage advantage over that at the other end, its distance being greater from the sacral fulcrum. Were the iliac beam of uniform dimensions and strength throughout, we might then easily apply the laws of the curvation of beams under forces to the present subject. This is not the case in regard to the iliac beams, for they are thickest and strongest where they have the most direct pressure to endure, namely, at the auricular surfaces or fulcra. It is interesting, however, to notice, that the bending of the lower end of the iliac beam is greatest at the point (D), where it receives the pressure of the sacrum, and decreases towards the lower support of the beam, in the acetabulum; just as happens in experiments on the mechanical properties of beams.

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[1] Wood. Art. Pelvis. *Suppl. to Cycl. of Anat. and Phys.*, p. 136.

[2] *Traité Complet de l'Art des Acc.* Bruxelles, 1835, p. 61.

The application of these views to the causation of oblique deformity of the pelvis, is at once apparent. The chief and primary peculiarity of that interesting deformity is the absence, from the earliest periods of life, of the sacro-iliac joint on one side—this is accompanied, in the adult, with flattening of the side of the pelvis, corresponding to the ankylosed joint. This flattening is the main deformity, and results from the ankylosis; the iliac beam no longer existing, and therefore the mechanism, described as ensuring the expansion of the side of the pelvis, being absent. On the other or normal side of the pelvis, the sacro-iliac joint is natural, the iliac beam is in its usual condition, and that side of the pelvis is expanded as usual. When both sacro-iliac joints are ossified, the iliac beams, as described, are absent on both sides, and the double oblique pelvis is the result.

We have no time at present to point out, as might easily be done, the application of these views to explain other points in this deformity of the pelvis; to explain the production of the horizontal and vertical curvatures of the sacrum, the gradually diminishing inclination of the brim of the pelvis, and also the mechanism by which the various deformities of these bones are produced. It must not be imagined that every peculiarity of the oblique deformity can be subjected to mechanical solution; of these the atrophy of certain parts of the affected side of the pelvis is one which must probably be referred to the great economical law of nature, whereby parts not having their usual functions to perform, do not attain their usual development.

There are some interesting suggestions in regard to the oblique deformity, with the mention of which I shall close this paper.

The simplest method of transmitting the weight of the trunk to the acetabula, may be conceived to be by two straight beams diverging from the base of the vertebral column to the heads of the femurs. Such a formation of parts would have been incompatible with some of the functions which nature destined for the pelvis, and especially with the function of parturition through it. To secure the large and rounded dimensions of the pelvic cavity, nature has adopted the arrangements, which it has been the object of this paper to point out. An essential element in these arrangements is the presence of the sacro-iliac joints. Were they not present, the large bow-like curve of the side of the pelvis would be always very liable to fracture, from the great forces and sudden shocks often applied to the two ends of the curve (the centre of the sacrum and the acetabulum). This liability to fracture, then, is avoided by the insertion of the two joints. When these joints are absent, nature secures the pelvis against fracture, by diminishing or destroying the curvature altogether, and returns, as in oblique pelvis, to the use of the straight, or nearly straight, beams, to convey the weight of the body to the acetabula.

The final cause of the peculiar deformity in oblique pelvis is thus rendered evident.[1]

ARTICLE III.—*Scarlet Fever Occurring Twice in the same Person.*

By JOHN WEBSTER, M.D., F.R.S., Consulting Physician to St George and St James' Dispensary, etc.

AMONGST the several diseases usually believed to affect the same individual only once during the whole period of life, scarlet fever occupies a prominent position. Exceptions to this generally received opinion have unquestionably been recorded by medical authors; but these abnormal varieties of the malady under discussion, are far from numerous; and as the evidence adduced, in several of the cases recorded, do not appear always free from doubt, writers of repute even assert that such instances of recurrent scarlatina have been set down in this category without sufficient consideration. Hence, the point in dispute is still held by some authorities as a "questio vexata," especially since much uncertainty even exists respecting the conflicting statements promulgated.

Several physicians of great experience in scarlet fever, confidently deny that this eruptive complaint ever affects the same person twice. Dr Willan, for instance, observes in his work, that a second attack in any individual is extremely rare; and among 2000 patients professionally visited by himself, he had never seen an instance of such repetition. Dr Currie, likewise a high authority, although he entertained at one time doubts, ultimately confessed that the same party is liable to scarlatina *once* only during a lifetime.

Other writers might be quoted, but it is superfluous; some medical practitioners continue of opinion that, after an attack of scarlet fever, complete immunity generally prevails in persons who have already passed regularly through its various stages. Such result being commonly imputed to the exhaustion of susceptibility produced in the human constitution by the exanthemata, after the virus has once been introduced into an individual's corporeal frame; the infection or contagion then becoming exhausted or annihilated, these pathologists assume, after the malady in question has produced its specific effects; this law being equally, if not more remarkably true in respect of scarlatina, than of variola.

Having recently attended an unequivocal example of scarlet fever affecting the same young lady at two separate periods, during both of which attacks the patient was under my immediate observation, I am induced to relate briefly the chief pathognomonic features

[1] It is my duty here to record my obligations to Professor Goodsir for anatomical assistance in this matter; and to Mr J. Elliott, Lecturer on Natural Philosophy, for many valuable criticisms.

observed during both instances. And as at the same time several relatives witnessed the phenomena exhibited by the disease, on each occasion, throughout its entire progress, not the slightest doubt can be entertained respecting the distinct nature of the malady, which passed regularly through every phase. Indeed, some symptoms during the recurrent attack, proved exceedingly severe, and at one time were so marked, that considerable anxiety was felt respecting the result, which, however, soon became dissipated by the patient's subsequent favourable progress and ultimate recovery.

The following are the chief facts of the case observed at both periods: During the month of April last year, a nurse in the family of my patient had scarlet fever, then prevalent in the neighbourhood. All the characteristic symptoms of that eruptive complaint manifested themselves in this patient, who, in due time, recovered. Subsequently the eldest daughter, Miss M ——, then in her nineteenth year, was also attacked by the same malady. Afterwards a second female servant, as likewise a younger brother and sister of Miss M.'s were similarly affected, thus making five distinct cases of the above epidemic disease, which occurred consecutively amongst members of one establishment, and all dwelling in the same house. Being perfectly cognizant of every fact specified, I would request particular attention to these important collateral circumstances, since they supply additional confirmation on the special point discussed.

The first symptoms in Miss M——'s primary attack of scarlet fever, which commenced on the 8th of May 1854, were those commonly observed during ordinary invasions of that disease. The skin felt very hot, the pulse became greatly accelerated, the eruption appearing most copious over the chest, neck, and upper extremities. The febrile excitement now increased considerably, the throat was also affected, but not severely; the tongue soon assumed the strawberry appearance, so common and pathognomonic in this malady, being also very red, swollen, and at first loaded with fur, but subsequently it got much cleaner. The eruption continued apparent during three consecutive days, then subsided, and after the fourth day the rush had entirely vanished. Subsequently every symptom of illness soon ceased, and the disease having passed through each stage satisfactorily, my patient in about a fortnight became convalescent.

Towards the end of March in the current year, scarlet fever again broke out in the same family, when a younger brother of Miss M——'s, but one who had escaped infection during the previous epidemic, now became attacked, every symptom being distinctly pathognomonic. The disease passed through its usual course, and constituted altogether one of the most severe examples of scarlet fever, ending favourably, which I have for some time attended.

Entertaining no fear of again becoming infected, and believing precautions wholly unnecessary against this reappearance of scarlet fever, in the same house where it last year prevailed, Miss M—— assiduously attended her sick brother during the continuance of his malady. Indubitably this sisterly devotion mainly contributed towards producing my patient's second attack of that eruptive disease, of which the premonitory indications appeared on the 5th of April last, or almost eleven months after the primary occurrence of the identical malady in the same individual.

Towards evening of the day now mentioned, Miss M——, after feeling languid and faint, was seized with pains in different parts of her body, succeeded by rigors; then headache and hot skin, accompanied with sore throat, which were followed by an eruption on the skin. However, it was not till next morning, or the 6th, when every doubt respecting the patient's actual disease was dissipated. On the 6th the surface felt exceedingly hot, pulse very frequent, and the eruption now appeared unusually copious over the entire person, particularly on the neck and extremities; face became swollen, had severe headache, with delirium: also sore throat, and enlarged tonsils; the tongue red, and exhibiting quite a strawberry appearance. In short, all the usual indications of scarlet fever were now manifested, and highly characteristic of that specific disease.

During the 7th and 8th of April the malady proceeded in the customary manner, the febrile symptoms being, moreover, unusually severe. Pulse 120, with much delirium, as also considerable nausea and vomiting. The eruption continued exceedingly copious over the whole body; face a good deal swollen, red tongue, and loaded with fur on the centre, but exhibiting still the strawberry aspect on its tip and edges. Throat much affected; tonsils and uvula being greatly enlarged, so as to impede deglutition, even of liquids, and also to render breathing often difficult. Cough now supervened; there prevailed great restlessness, and the nights were sleepless.

On the 9th the eruption began to decline, the fever was somewhat ameliorated, the tongue got perfectly clean, but deep red, and swelled. Throat continued bad, tonsils being still much enlarged, and partially ulcerated, although deglutition, as also the breathing, were now somewhat improved. Pulse less frequent, and scarcely any delirium. Throughout this, and three previous days, the usual pathognomonic symptoms of scarlet fever were unequivocal, the present attack having proved much more severe than the former similar affection. By the 10th the eruption had almost vanished. Pulse tranquil; skin cool and moist; bowels freely opened; urine copious; throat greatly improved, a small abscess having broken during the previous night; slept several hours consecutively; cough less frequent; breathing, and also swallowing, considerably ameliorated, and felt altogether much better. Very little fever, and although languid, the patient showed evident indications of future convalescence.

Passed a good night on the 11th, the acute symptoms having almost ceased. Tongue clean; tonsils less swollen, and is able to swallow with more facility; bowels open; kidneys secrete copiously; but the patient still continued weak. During 12th and 13th the symptoms were ameliorated in every respect; appetite not so bad; free from cough; throat better; enjoyed several hours sleep during the part of two nights, and is much improved. On the 14th Miss M—— was able to get out of bed, being considerably stronger. Every day afterwards was marked by progressive improvement; the skin desquamated satisfactorily; and in twenty-one days from the first appearance of any eruptions, I discontinued attendance, my patient having entirely recovered.

The chief object of the present paper being to communicate an account of the rare example of recurrent scarlet fever now reported, it may perhaps appear supererogation to mention the treatment pursued; nevertheless, I would remark, by way of summary, that throughout the eruptive stage, it was strictly anti-phlogistic, salines, diluents, antimonials, diuretics, and mild aperients, being the principal remedies. Spunging the surface with tepid vinegar and water, was also assiduously employed. No food whatever of a solid description was allowed, which rule is of the highest importance during the eruptive stage of this disease, and should be strictly enforced; only tepid beverages, such as toast and water, thin gruel, or barley water, with orange or lemon juice, being then permitted. Astringents and acid gargles were frequently used, as also inhaling the steam of hot water, into which some vinegar had been previously poured. The vapour of that liquid was at the same time constantly diffused throughout the patient's apartment, being not only an excellent prophylactic in respect of those who continue in attendance, but on account of its proving besides highly efficacious to the patient during this sometimes very dangerous and infectious complaint. An embrocation of soap liniment, with laudanum, was applied to the neck and throat externally. Ultimately a lotion of nitrate of silver was smeared over the pharynx, with much benefit, and immediately the eruption vanished, and all febrile excitment had abated; mutton broth or beef tea were administered; at first, however, in small quantities. More nutritious food was soon afterwards permitted, with which tonics and occasional purgatives, when deemed necessary, were exhibited, whereby the patient became speedily convalescent.

Before concluding the case above narrated, I would briefly remark, although the observation may appear superfluous, that seeing the evidence substantiating every statement brought forward, is complete, and no link in the chain broken, whilst both parents, as likewise other witnesses, were cognizant of the facts now detailed; and lastly, as I attended Miss M—— when passing through each attack of scarlet fever, it is therefore hoped the present communication will be considered worthy of record in the *Edinburgh Medical Journal.*

Art. IV.—*Practical Remarks on the Treatment of the various Forms of Dyspepsia.* By James J. Ross, M.D., Surgeon, Golspie, Sutherlandshire.

In the following pages I do not intend to enter into a detailed description of such a Protean disease as dyspepsia. My purpose is to throw together a few practical remarks upon its different forms and varieties; and this, I think, I shall be best enabled to do by adhering to the following classification of these varieties; which classification seems to me one well calculated to be useful as a guide to their treatment, while at the same time it is not pathologically incorrect.

A. Inflammatory dyspepsia.
    1. Acute and chronic.
B. Functional dyspepsia.
    2. Dyspepsia with biliary derangement.
    3. Dyspepsia with intestinal disorder.
    4. Dyspepsia with impaired or lost appetite and slow digestion (deficient secretion).
    5. Dyspepsia with or without vomiting of matters mucous or ropy, acid or rancid, heartburn and pyrosis (excessive and perverted secretion).
    6. Simple dyspepsia, with pain after food, with or without vomiting (gastralgia, morbid irritability of stomach).
    7. Anæmic dyspepsia, with sympathetic disorders.
    8. Flatulent dyspepsia.

Here would naturally follow
C. Organic dyspepsia.

But, as those forms of stomach ailments which depend upon organic disease are not naturally included under the head of dyspepsia, they will not come under consideration here. I have merely put them down in order to render the classification complete.

1. *Inflammatory Dyspepsia.*

Inflammatory dyspepsia is characterized by pain at the epigastrium: which pain is increased by pressure with the hand, by stretching the body backwards, or bending the trunk forward as in stooping: there is then not only pain but tenderness. And this pain is not confined to the epigastrium; it extends upwards behind the sternum—in fact, along the œsophagus. It is also something more than pain: there is a feeling of heat combined with it, of a very peculiar kind; and accordingly we find that the thirst in this form of dyspepsia is also peculiar; there is not only a desire for drink, but a particular desire for cold drink. The epigastric pain is aggravated by the ingestion of food, particularly solid food, and still more particularly animal food. The stomach resents its presence, and generally throws it off by vomiting. The tongue is red, sometimes fiery-red, at the tip and edges, with excited strawberry papillæ; the mouth is rendered sticky by a whitish, glutinous, soapy saliva; the fauces and throat are red, and streaked with congested vessels. With all this we have a general feeling of discomfort—a kind of "blue devils"—feverish heat and headache.

When a dyspeptic patient presents these symptoms, we may be quite sure that we have to do with erethism of the gastric mucous membrane, with inflammatory dyspepsia.

Now, in a case of this kind, if it were the immediate result of a debauch—of excessive eating or drinking—I would give an emetic of ipecacuan. ℈i. in warm water; and apply six or eight leeches to the scrobiculus cordis. In any case, I would next administer 8 or 10 grains of calomel, in the shape of powder, mixed up with a teaspoonful of thickish cream, and follow it in four or five hours by a dose of castor oil. The calomel here fulfils several indications: in the full dose mentioned, it is one of the best means we have for arresting vomiting; and it is proved that in this full dose it very powerfully allays vascular irritation of the mucous membrane of the stomach and upper portion of the digestive tube, first directly—as it were by a local sedative action, and next indirectly—as a derivative, by the irritation it causes in the mucous membrane of the colon and lower bowel. But to act in this way in such a case, a full dose, not less than 8 or 10 grs., is required; a smaller dose, of 2, 3, or 5 grs., acts quite differently, and would increase vomiting and gastric irritation.

These means will produce great amendment; and in general, all in the shape of medicine that will be afterwards necessary, will be some such mixture as this:—

No. 1. ℞. Liq. Ammon. Acet. ℥iss. Nit. Potass. ʒi. Liq. Mur. Morph. ʒi. Mist. Amygdal. ad ℥vi. M. A table-spoonful three times a-day, half an hour before meals.

But we must do more than order medicine: we must strictly regulate the diet. It must be solely farinaceous, for the most part fluid, and taken in very small quantity at a time: sago, arrowroot, rice, and the like, with milk in any shape; gradually getting on, as amendment progresses, to tea and dry toast, eggs lightly boiled, light egg pudding, chicken broth, beef-tea, mince-meat, till the usual diet can be taken with safety and comfort.

It is commonly laid down, that the prussic acid is contra-indicated in inflammatory states of the gastric mucous membrane. I am unwilling to raise rebellious doubts against generally received medical axioms; but I am by no means sure as to this one; like a certain Chancellor, "I doubt!" Certain I am, that in cases not so acute from the first as the one I have sketched above, or where the more acute symptoms have subsided under the treatment detailed—where with epigastric tenderness, pain and heat, there is troublesome vomiting, the addition of acid. Prussic. gutt: xxiv. to ℞ No. 1, will do good instead of harm, and I can strongly recommend it. I remember one case in particular, where it was of eminent service in relieving symptoms of this kind, the result of a large quantity of Nitrate of Potass having been swallowed by mistake for Epsom salts.

Cases of inflammatory dyspepsia, after all the symptoms have disappeared, after they are in fact cured, are very apt to be followed by complete anorexia: the state of excitement is succeeded by a state of atony, the only thing complained of being a total want of appetite. For this, nothing answers better than the acid. sulphuric. dilutum, or aromaticum, 20 to 25 drops three times a-day, in a glass of plain water, half an hour or an hour before meal times. If this loss of tone extends to the bowel as well as the stomach, if there be constipation as well as anorexia, we may give a compound rhubarb pill daily, immediately before dinner.

In cases of less intensity, in chronic inflammatory dyspepsia, whether primarily so or the result of the acute form, the treatment, as regards both medicine and diet, is the same; only that, instead of leeching, or after leeching, if the pain be obstinate, it is well to bring out a free eruption over the epigastric region by antimonial ointment: thus,—

No. 2. ℞. Tart. Ant. ʒss—i. Unguent. Hydrarg. ʒi. Axungiæ ʒvii. M. The size of a nut to be rubbed in night and morning:

Or the croton oil may be used in the same way as a liniment: thus,—

No. 3. ℞. Ol. Crot. ʒiss. Ol. Cajeput. ʒi. Ol. Olivæ. ʒx. M.

In this case, five minutes' friction morning and evening will suffice; or 20 to 30 drops of croton oil may be added to ℞ No. 2.

It is in cases of this kind that mischief is often done by the routine treatment by bitters: they are not needed, and are positively hurtful: only remove the "*lædentia*"—the inflammatory congestion and erethism, and no further "*juvantia*" will be required: nature will do the rest, or, if she does require any assistance, the dilute sulphuric acid, as already mentioned, will do all that is necessary.

It is cases of this kind, too, and in this stage, that give such apparent support to the homœopathic humbug; the diet being carefully regulated, the "globules" are prescribed with great gravity and minuteness of direction; the patient gets well, and forthwith to these wonderful atoms the cure is ascribed; with which they have had no more to do than has the fly with the turning of the wheel, or than the music of the Jew's harp, mentioned by Feuchtersleben (apparently on the authority of Kant), had to do with expelling the maw-worms from a man to whom a mild aperient had previously been cunningly given!

2. *Dyspepsia, with Biliary Derangement.*

This form is met with in all grades of severity, from well-marked and intense congestion of the liver down to a state in which it may be doubtful whether the biliary organs are at all involved, or whether it be simply a case of what has been termed "duodenal dyspepsia." Accordingly, we find one patient with a feeling of pain in the region of the liver, with some tenderness and fulness, especially some time after eating: he has not only little or no appetite, but he actually loathes food; or he fancies that he will be able to eat with zest, till the food is set before him, and then he finds out his mistake; or, if he does eat, an hour or two afterwards he vomits it again "as bitter as gall. He is heavy and dull, and disinclined for exertion, whether of body or mind; he sleeps after his dinner, and awakes unrefreshed and fidgetty. As evening comes on, he becomes restless and despondent, with heat in the palms of his hands and soles of his feet; he tumbles and tosses after going to bed; and at last he falls into a troubled and disturbed, though a heavy sleep. In the morning he is headachy and unwilling to get up; his mouth is dry, unpleasant, sticky, and bad tasted; and he finds that the little urine he has made over-night has let fall a copious deposit of lithates, or even distinct purpurates. His complexion is lurid and dirty, verging to jaundice; his eye muddy, with a dark ring, more or less broad, and more or less complete, round it; his tongue is dry at the point and down the middle, while its base is covered with a thick yellow, or brownish-yellow fur, and its sides are full, soft, cushiony-looking, and indented by the teeth. The bowels are generally constipated, the skin harsh, and the pulse often intermitting.

Another patient merely complains of slight fulness and stuffing across the upper part of the abdomen after meals, and after a much less quantity of food than formerly; occasional headache, with transient giddiness, occasional vomiting, bad taste in the mouth on awaking in the morning,—these symptoms being attended by highly coloured, muddy urine, and a foul, slimy, yellow tongue.

Between these extremes, all varieties of shade will be met with, but all of the same character, differing merely in degree. In all there is impaired energy of the stomach, combined with congestion of the liver, interruption and retention of its secretion, and more or less contamination of the circulating fluid and general system by the elements of bile, either from a failure of primary elimination, or from subsequent reabsorption.

Now, in an aggravated case of this kind, it is well at once to relieve the overloaded liver of its vascular congestion, by cupping over the right hypochondrium; in slighter cases, by the repeated application of flannels wrung out of boiling water and sprinkled with spirits of turpentine. We must next relieve the biliary congestion by free purging, by mercurials and salines. In the first place, give a dose of Calomel or Jalap—5 or 6 grs. with 15 or 20, or, if there be vomiting, 6 or 8 grs. of calomel alone at night followed in the morning by a black draught. Then continue this action for a few days (more or less, as may be thought necessary from the appearance of the evacuations and the relief produced) by some such combination as the following:—

No. 4. ℞ Pil. Plummer. gr. xviii. Pulv. Jacobi Veri gr. xii. Sap. Castil. gr.

xxiv., M, divide in pil. 12. Two to be taken every night, taking every morning a wineglassful of the following :—

No. 5. ℞ Sulph. Magnes. ʒii. Sp. Ammon. Aromat. ʒi. Sp. Cardam. Co. ʒiss. Infus. Gentian. Co. ℥iiis., Infus. Sennæ Co. ℥vi. Ext. Taraxaci ℥ss.

Or, instead of the above pill, No. 4, we may use one or other of the following prescriptions :—

No. 6. ℞ Pil. Colocynth. Co. ʒi. Calomel gr. xv. M. ft. pil. xv. Two or three at bedtime.

No. 7. ℞ Pulv. Ipecac. gr. iii. pil. Hydrarg. gr. xii. pil. Colocynth. Co. ʒss. M. ft. pil. xii. Two at night.

No. 8. ℞ Pil. Hydrarg. gr. iv. Pulv. Aloes gr. i. Ext. Taraxaci gr. v. M. ft. pil. ii. At bedtime.

No. 9. ℞ Pil. Hydr. ℈i. Ext. Colocynth Co. ℈i. Pulv. Scammon. gr. x. Sap. Castil. gr. x. Ol. Carui. gtt. iv. M. ft. pil. xv. Three at bedtime.

No. 10. ℞ Pil. Gambog. Co. gr. xv. Ext. Colocynth. 6. gr. xv. Calomel gr. x. Conserv. Ros. q. s. ut ft. pil. 12. Two at bedtime.

Taking in the morning a dose of the mixture ℞ No. 5, after whichever of these may be used the foregoing night.

And here I will say, that I make no apology for introducing prescriptions somewhat freely. Some will say it is unscientific, routine, and this, that, and t'other thing horrible! I care not: all I know is, that to this day I often, when wishing in a particular case to order particular remedy, feel some difficulty as to the form of doing so; and, as I am not too proud to use a good prescription, though it be not my own, I would often be glad to have one ready to my hand, or in my head. I confess to having a fancy to certain formulæ in certain cases; and though I am far from advocating a slavish adherence to those given here or elsewhere, I think that they are useful, as furnishing a basis for such modifications as circumstances require.

To return: Steady purging is necessary in these cases; and after this has been carried out by four or five days' use of the above means, the effect will begin to shew itself in the altered feelings of the patient, and the improved appearance of his tongue, arising from the removal of morbid secretions, and the unloading of the hepatic vessels, whether arterial, venous, or biliary. But, finally, to secure this object, it will be necessary to follow up the same line of treatment, in a milder degree, for some days longer; and this may be effected by giving the pills ℞ No. 8 every or every other night, or one of ℞ No. 7 night and morning, for a few days.

These means will perhaps cure the case altogether: they will at all events remove the biliary complication, and so reduce it to the 4th order of our classification, the management of which will be considered in its proper place.

In less severe cases of this kind, where the hepatic disorder is slight, where there is not a due secretion of healthy bile, I am very partial to the following, prescribed by Dr Copland, under the head of "Duodenal Dyspepsia":—

No. 11. ℞. Pil. Hydr. gr. iii., Pulv. Ipecacun. gr. ss—i., Ext. Col. Co. gr. ii., Ext. Hyosc. gr. ii., Sap. Dur. gr. i M. ft. pil. ii. To be taken at bedtime. Taking next morning,—

No. 12. ℞ Carb. Sodæ gr. xii., Ext. Taraxaci ℥i., Inf. Columb. ʒss Inf. Sennæ Co. ʒss. Spir. Amm. Arom. ʒss. T. Cardam. Co. ℥i M.

These may be repeated every, or every alternate night and morning, for three or four times; and in a mild case of no long standing, will quite suffice for a cure; particularly if, for a week or ten days afterwards, we keep up a healthy action of the liver, by giving half a teaspoonful of good Ext. Taraxaci at night in a small cup of hot milk—a form of administration which is very generally relished, and which I prefer to the more modern and fashionable "Liquor."

We frequently meet with still milder cases of this form of dyspepsia;—where biliary disorder is very slightly marked, and where we may fancy that tonics might at once be given with good effect: but we soon find that it is not so: tonics disagree; they cause heat and discomfort, headache, and nausea or vomiting, and have to be stopped. These cases are particularly characterized by a soft velvetty, yellowish or greenish, tongue; and in them I find that, almost invariably, the stomach is improved, the tongue cleaned, and the way prepared for a more specific after-treatment which at first failed, by the following pill,—

No. 13. ℞. Pulv. Rhei. gr. xv., Pil. Hydr. gr. x., Ext. N. Vomicæ gr. iii., Ext. Gentian. ℈ii. M. ft. pil. xv. One 3 times a day, half-an-hour before meals.

After a severe or protracted attack of bilious dyspepsia, partly from the effect of the illness itself, and partly also, no doubt, from the effect of the remedies which are absolutely necessary for its cure, the patient is left a good deal shaken in strength, weak and pale. Now nothing answers better in these circumstances, for restoring the energies of the digestive organs locally, and of the system generally, than some one of the milder preparations of iron—the ammonio-citrate, or tartrate, or the syrup of the iodide, or small doses of the Mist. Ferri. Co.:—taken immediately after meals.

3. *Dyspepsia with Intestinal Disorder.*

I, of course, here intend to do little more than simply refer to ordinary constipation of the bowels, though this is a point in almost all cases of dyspepsia, which requires to be attended to, and obviated by such means as are suited to the particular case. In general, purgatives should be combined with bitters, so as not to impair the constitutional powers, and given in such quantities as will just keep the bowels regular, without purging. The following is a very good formula, which may be continued for a long time, without losing its effect, or any necessity for increasing the dose:—

No. 14. ℞. Fol. Sennæ ℥ii., Rad. Gentian. ℥ss. Rad. Zingib. ʒi. Aq. bull. lbii., Inf. per Noctem, Cola et adde Sulph. Magnes. ℥i-ii., T. Cardam. Co. ℥i. Spir. Ammon. Aromat. ℥i. M. ℥iss-ii. for a dose in the morning or at bedtime.

Neither do I mean to do more than simply notice the opposite of this—bilious diarrhœa—induced by excessive or perverted secretion; though this also must not be neglected.

But there is one form of intestinal disorder, which is not very uncommon in dyspeptic cases, which is very annoying to the patient, and which is sometimes very troublesome to the physician. Two or three hours after a meal, griping pains begin to be felt in the lower part of the abdomen, and across the region of the arch of the colon, which give a great deal of uneasiness, without amounting to the acute pain of colic, and which are sometimes attended with a desire to go to stool, without actual diarrhœa, and without the tenesmus of dysentery. The irritability of the intestinal mucous surface seems to be morbidly increased, so that the passage of the food over this surface gives pain; and the muscular tone of the gut seems to be at the same time depressed, without either such vascular or follicular irritation as leads to diarrhœa or dysentery. Exposure to cold, and especially exposure to wet, is the common cause of this affection: it is always aggravated after eating; it will go on, and continue indefinitely, and purgatives rather increase than relieve it.

Now for the treatment of this disorder, I can very confidently recommend the following medicine, which I first became acquainted with, from its having been prescribed in my own case, by the late Dr John Inglis Nicol of Inverness, for a severe attack of this kind, brought on by a wetting, at a time when my digestive organs were in a weak state after recovery from fever. I have been fond of it ever since in this kind of intestinal disorder, and have seldom been disappointed with its effects.

No. 15. ℞. Tinct. Cinchon. Co. ℥iss., T Columbæ ℥iss. T. Strych. N. Vomicæ ʒss. M. A dessert spoonful in a glass of water 3 times a day, an hour before meals.

If necessary, the natural action of the bowels should at the same time be kept up, by a daily compound rhubarb, or colocynth, and henbane, pill before dinner or at bedtime.

A very similar affection occurs in young children, between 5 and 10 years of age, either as a sequela of remittent fever, or without having been preceded by febrile symptoms:—loss of appetite, flatulence, acidity, gripings, irregularity of bowels, and enfeebled tone of the general system. In them we might not like to make free with nux vomica; nor is it necessary, for we will generally succeed in relieving them by giving 3 to 5 gr. of Rhubarb, with as much carbonate of Soda, twice a day, about a quarter of an hour before breakfast and dinner.

4. *Dyspepsia with impaired or lost appetite and slow digestion.* (*Deficient secretion.*)

Of all the forms of dyspepsia, this is the one best entitled to the name of "indigestion," it is really indigestion—digestion performed imperfectly, feebly, slowly, and with difficulty—atonic dyspepsia. The appetite is always impaired, sometimes abolished; the stomach feels that it is not fit to do much work, and, therefore, it does not desire much work to do; it is soon satisfied with food. The patient feels stuffed after a very moderate meal, and says that it remains "like a lump" in the stomach. There is a heavy feeling of uneasiness and fulness across the epigastrium, not amounting to pain, and sometimes a feeling of distension—a desire to loosen the dress over this region. With this there is langour and laziness—a kind of sleepy inactivity. The bowels are slow too; constipation generally exists, and where there is no apparent constipation—where the bowels act daily—still the evacuations are hard, dry, and lumpy, in detached masses, not properly formed, and sometimes these are followed by liquid fæces; or there may even occasionally be diarrhœa for a day or two. The tongue is slimy, without being furred, and frequently, in the morning, there is a brown dry streak down its centre, an accumulation of brownish sticky sordes on the teeth, and an effort to hawk up dry mucus from the throat and pharynx. The digestive organs, in short, are altogether below par; they have probably been overtasked before, and now they flag; their secretion, by which they were enabled to do their duty, has failed, and therefore that duty is no longer performed.

This variety of indigestion may come on gradually in a chronic form from the first, or, as already mentioned, it may succeed, and be the consequence of, one of the more acute states.

In its treatment, we must first remove any remains of these, or any biliary complication that may be present, by the means already mentioned; and then—or at once if there be no such complications—our object must be to restore the tone of the stomach, as regards its nervous, its muscular, and its secretory energies, taking care to sustain at the same time a due action of the bowels.

The simplest case of this variety of dyspepsia is, where the principal and almost only symptom is loss of appetite, there being little or no discomfort at stomach, and the bowels being regular. Here the dilute sulphuric acid often suits well; or with it, we may give the Sulphate of Quinine, in small doses—not more than ½ gr. three times a day, an hour before meals; or a bitter infusion, such as

No. 16. ℞. Rad. Columbæ ʒii. Cort. Cinchonæ ʒii. Cort. Aurant. ʒi. Cort. Cinnamon. ℥i. Sem. Coriand ℥i. Aq. bull. lbii. M. Inf. per Horas xii. et cola. A wine glassful three times a day, an hour before meals;

Or the Infus. Gentian. Co. with a little Liquor Potassæ. As a general rule, I think, in these cases, the milder and lighter vegetable bitters are to be preferred to the stronger tonics.

Where, with want of appetite, there is also constipation, with tonics as above, the bowels must be regulated by a mild aperient pill, given daily, before dinner or at bedtime; or, what is better, the aperient and tonic may be combined in the same prescription. When this is done, a less dose of the former will be effectual, and the patient is saved from swallowing a multiplicity of medicines at different hours. Quinine may be combined in a pill with a little Ox Gall and Extract of Aloes, or a small dose of ℞ No. 14 may be given twice a day; or we may use the following, which I find an excellent formula in such cases, varying, of course, the quantity of the epsom salts to suit the requirements of individual patients:—

No. 17. ℞. Sulph. Magnesiæ ℥i. Acid Sulph. dil. ʒi. Tinct. Gentian. Co. ℥i. Aq. lbi. M. Two tablespoonfuls twice or thrice a day.

Again, in a case of this form of dyspepsia, where not want of appetite but want of digestion, is the predominating symptom, where the patient complains most of "a lump at the breast," where the food is felt to remain long undigested in the stomach, we have to endeavour to restore the gastric secretions, deficiency of which constitutes the main pathological character of the complaint. Now nothing is found to answer this purpose better than the Pulv. Ipecacuan. in doses of gr. ss or gr. i twice a day. A full dose of it as an emetic, stimulates the stomach and largely increases its secretions for the time; but then it exhausts the organ, weakens its tone, and leaves it worse than at first, just as a full dose of a purgative stimulates the bowels, increases their secretions, and then leaves them more constipated than before it was given. But in a case of habitual constipation, we don't give full doses of purgatives, but such doses merely, as will gently solicit the natural action of the bowels, and gently keep up their proper and healthy secretions; and these doses we combine with tonics to prevent depression of their muscular tone, and sometimes with anodynes to prevent nervous irritation. It is exactly on the same way, and I believe on the same principle, that we use ipecacuan. in slow digestion; we don't give it in emetic doses, greatly to increase secretion, and induce violent muscular contraction; but in small doses, gently to excite the gastric glands and follicles, and gently to stimulate muscular action; and these doses we combine with mild tonics, such mild aperients as are at the same time somewhat tonic, and occasionally also with anodynes, thus:—

No. 18. ℞. Pulv. Ipecac gr. ss-i. Pulv. Rhei. gr. iii. Ext. Gentian. gr.-i. M. ft. pil. To be taken twice a day, shortly before breakfast and dinner.

Sometimes instead of the Ext. Gentian, I use the Ext. Hyosc. or Conii. The effects of this remedy are admirable and speedy, if the patient pays due attention to the quantity and materials of his food.

I do not here or hereafter intend laying down rules for eating and drinking in dyspepsia, for I think it is useless to do so; the general rules of diet in such cases are well enough known—not to eat too much, too fast, or too often—that, I believe, includes all that need be said here. And after all, it is a point which each patient must find out, and which he very soon does find out, for himself; though whether he will always have sufficient self-control and fortitude to obey the dictates thus given him by his "inner man," is another matter altogether. But unfortunately his doctor can no more oblige him to listen to, and follow the promptings of this physical conscience seated in his stomach, than his minister can oblige him to be guided by the "still small voice" of the moral conscience in his mind. The one may prescribe rules of diet, and the other may preach rules of conduct, but in both cases the party himself must work out his own cure.

After the feeling of stuffiness and weight, from slow digestion, has been removed by the Ipecacuan, taken in this way for eight, ten, or fourteen days, we may then complete the cure by the Sulphuric, Nitric, or Nitro-muriatic acid, or any ordinary bitter tonic.

I have already mentioned that, on entering upon the treatment of a case of this kind, any existing biliary complication, however slight, must first be removed by appropriate means, of which ℞ No. 13, will be found one of the best. This done, tonics will then be required, and will act well; and it is in this case, I think, that iron is the tonic particularly indicated. It is probable that the liver having been torpid and the bile not duly excreted, its elements have contaminated the blood, and affected the composition and vitality of its globules, and that the iron exerts its specific effects in restoring the qualities of the circulating fluid. But be this as it may, I am sure of the fact, that in such a case iron does more good than anything else; and I am partial to it in the following form:

No. 19. ℞ Mist. Ferri Co. ℥vi. Infus. Quassiæ ℥vi. M. Two tablespoonfuls twice a day.

This should be continued for a considerable time, till the local tone of the stomach, and the general strength of the system be quite restored—in short, till the patient has the conscious feeling of health about him once more. And for the first week or two of its use (or at any time after, if the tongue threatens to be yellowish, or greenish, or slimy), it is a good precaution to secure a healthy action of the liver by the following pill:—

No. 20. ℞ Pil. Hydrag. gr. xii. Ext. Taraxaci ℥ss. M. ft. pil. xii. One every second or third night at bedtime.

(*To be continued.*)

ARTICLE V.—*Case of a Gentleman who was born Deaf and Dumb, and subsequently became Insane.* By JAMES B. BALFOUR, M.D.

No apology is necessary, on my part, in presenting the following case to the notice of my professional brethren, as I believe it is one which is perfectly unique. The only apology necessary is, that such an interesting case should not have been related by one far more able to elucidate the many scientific points which this presents, both to the medical man and the psychologist. Perhaps some excuse may be found in the fact, that it came under my observation at an early period of my professional studies, and before I was able to bring that knowledge, subsequently acquired, to bear on a subject of such deep importance. I give the case as I find it in the notes, which I at the time made, with the remarks which I then appended to it. And I will certainly feel glad of any if your contributors, engaged more immediately with the study of psychological science, will favour us at some future time with their remarks upon it.

The subject of my memoir was a native of Ireland, belonging to a wealthy and highly respectable family. He was born deaf, and, as might be expected, never acquired the power of imitating sounds, or, in other words, was dumb. When he grew up, his friends sent him to Edinburgh, to be under the care and teaching of the famous Mr Kinniburgh. While at this school he made great proficiency in learning, and exhibited a more than usual amount of talent. He remained some years with Mr Kinniburgh, and when his powers were considered sufficiently developed, he was removed by his friends to his native country, in one of the flourishing commercial towns of which, through the influence of a relative, he obtained a situation as a clerk. While he held this situation he displayed great proficiency in book-keeping, and the general transactions of business; and so high did he rise in the estimation of his employers, not only from his general aptitude for business, but also from his quiet amiable manners, that he was made their head-clerk, which situation he retained for many years, and, indeed, until he became incapable of doing so from mental aberration. From a child he was remarkable for the healthiness of his constitution, but, as he grew up, he gradually became very stout and corpulent, and when about thirty-five years of age, he was suddenly attacked by a fit of apoplexy. From this he recovered, but ever afterwards he was observed to have a slight dragging of the right leg, showing that there was some permanent lesion of the brain. It was after this attack that the first signs of mental aberration began to present themselves; he was not so correct in his book-keeping, and it was discovered, when holding communication with him, that he entertained some strange notions in regard to religion, which was the more remarkable, as previous to this period, he had been very strict in his religious tenets, and a member of the Protestant church. The ideas which he now began to hold, as might be easily anticipated, could never be very accurately ascertained, but they appeared to have reference to some mysterious connection which existed between himself and the Saviour; and other ideas of a similar nature. His conduct, at the same time, began to be influenced by the ideas he entertained, and it was ultimately found necessary to remove him to a place of confinement. He was, therefore, removed to an asylum for the insane, and it was while there that I had an opportunity of observing him.

The dragging of the right leg still continued to a slight extent, but otherwise, he was in robust health. He was merry and good-natured, and soon became quite happy in his new situation. No clear idea could ever be obtained of the state of his mind, so far as his delusions were concerned, as he always avoided entering upon those topics on which he was said to be insane (a peculiarity this not confined to a case like his, but very common amongst insane persons). He had at this time lost, to a great extent, the use of the finger alphabet, but he held communication with those around by means of writing. He always carried his slate with him, and it afforded him great pleasure, when any one would hold communication with him, by its means. He was a great reader, and always selected his own books. He asked for the library catalogue, and pointed out the book or books he wished to peruse, and it was remarkable how he selected books of interest, both in history and miscellaneous literature. He appeared to enjoy such passages in the works which he read, as exhibited wit and humour, for he was often observed laughing to himself while reading, and on being interrogated what made him do so, he pointed to the passage, and it was invariably found to be one which would excite the risibility of a sane person. There was one peculiarity about him, which was curious, and which is particularly worthy of notice, as there can be no doubt it was connected with his insanity—it must have had some connection with his delusions, could we have discovered it. He believed that he was not deaf and dumb, but that he could speak perfectly well, and it was those around him who were in that condition. He would write this down upon his slate, and when asked to give a specimen of his talkative powers, would commence to utter the most discordant sounds, and if told that was not talking at all, he would get rather ill pleased, and state that it arose entirely from the stupidity and deafness of the party inquiring, who could not understand what he said. All this conversation, remember, all the while, being carried on by writing on his slate.

During his residence in the asylum, he mingled in all the amusements which are continually had recourse to (in such institutions of the present day), in order to relieve the patients of the ennui of confinement, and to endeavour to rouse their dormant faculties, or drive away their morbid thoughts. He attended the musical concerts, and although the sweet sounds of the music, in his case, fell upon ears closed to all their beauty, he yet appeared pleased with the exhibition, and clapped his hands and laughed, when others did it. And at the little select evening re-unions which frequently took place, he was the happiest of all.

I now come to give an account of one of the most interesting scenes it has ever been my fortune to witness. In the neighbouring town to where the asylum is situated, there is a school for deaf and dumb children, which is taught by a gentleman, who is also deaf and dumb. Upon one occasion the children were all brought to the asylum to exhibit before a number of the patients their proficiency in learning. Great interest was exhibited in this exhibition by the patients present; and the patient who is the subject of this notice, was present among the rest, and his enjoyment appeared unbounded. After the exhibition was over, he was introduced to the teacher of the children, and they began to converse together. The teacher told him he was educated at Kinniburgh's, and asked where he had been taught. On hearing this the patient looked intently at him for some moments; suddenly uttered a cry of joy, and rushed into his arms. The expression of his joy is such as we could fancy being made by a wild Indian. He danced, laughed, and screamed in turns; and it was some time ere those around could understand the cause of such unusual excitement. At length the teacher explained that the two had been intimate acquaintances at Kinniburgh's, eighteen years before; and although thus long separated, and never having met during the interval, he had recognised in the person before him his old school companion. Memory had recalled the happy days of his youth, and his joy burst forth in the manner I have described. It has never been my lot to witness a more interesting meeting, and it would require a far abler pen than mine to convey even a faint idea of the scene which took place. The joy he exhibited upon this occasion was the more remarkable, as he was from time to time visited by a favourite brother, and although he always appeared glad to see him, yet he never made any marked demonstration of joy. After this the teacher frequently visited him, and he always exhibited marked pleasure at the meetings, both by signs and noises. About this time, however, he had another apoplectic attack, from which he recovered, so far as to be able to be out of bed, but he was now a changed man; his power of voluntary motion was greatly impaired, and instead of being merry and active, he spent the greater part of his time in a state of sleep. He could not be induced to read or converse by means of writing. At times, indeed, a faint glimmering of his former cheerfulness would return, but only as it were to show that the mind was still there, and he would again relapse into his condition of drowsiness. The mind was, as it were, locked up, and even the ordinary means of access under such circumstances, were denied to us. He continued thus for two or three months dead to the external world, and leading almost an animal existence, when a third attack of apoplexy put a period to his sufferings, cares, and trials.

In this case, a *post mortem* examination was kindly permitted to be made; and I noted the following as the appearances presented. I can only regret, that some one more capable than I am, had not been present to give me the aid of his powers of examination and observation.

As might have been expected, there was no lesion observable of either the abdominal or thoracic viscera. On opening the head, the blood-vessels on the surface of the brain were found to be more than usually congested; the brain itself was found to be large and firm, and on cutting into its substance, presented a congested appearance. There was slight effusion into both ventricles. There was marked softening of the left corpus striatum, though not to a great extent. Both internal ears were removed, and in company with a friend, who was distinguished for his anatomical knowledge, I examined them most minutely, but we could discover nothing either in their structure or arrangement, which could account for the deafness; everything appeared quite natural. We had no microscope at our command to examine the state of the nerve, otherwise this would have been done, but, so far as ocular demonstration went, it also appeared to be natural.

Having thus brought the history of this extraordinary case to a conclusion, I would only add one or two remarks which suggest themselves. In the first place, from what cause did the deafness arise? We have seen, from the *post mortem* appearances, that it could not have arisen from any malformation of the ear itself, as all parts of that organ were perfectly natural. Did it then arise from some defect of the auditory nerve, incapacitating it from conveying impressions made upon the ear to the sensorium? Or did it arise from some affection of the sensorium itself in connection with the auditory nerve? I have already said that I was not able, microscopically, to examine the nerve and brain, and, therefore, cannot say whether any organic change existed. We are still very ignorant of what are the causes of many cases of congenital deafness, and it is a subject which offers great scope for microscopical investigation, as in many cases there is nothing in the structure of the ear, or in the auditory nerve itself, which, to the naked eye, can account for this infirmity.

Another interesting point, is the cause of the extraordinary mental phenomena presented by this patient. This case presents one of a most interesting character for the study of the psychologist, and, I trust, some of my brethren in the profession will take up this point, and present us with their views upon the subject.

I have given the case as fully as possible, from the notes I made at the time; and, I trust, I will be excused for not entering more minutely than I have done into the points of interest which it presents.

37 Albany Street, August 1855.

Valedictory Address to the newly made Medical Graduates of the University of Edinburgh, 1st *August,* 1855. By Professor Simpson.

Gentlemen,—It falls this year to my lot to address to you a few farewell remarks, on the part of my professional brethren and myself, before we now separate—and separate for ever—as professors and pupils. These remarks, however, will be brief; as I know your impatience to be set free from this, the last and only remaining link in the chain of academic restraint. For, though it be true that the absolute shortness of human life is a constant and common theme of regret, yet it is equally true, that all of us anxiously press and hasten from one step and stage of human existence, upward and onward to the next, sorely begrudging, in this railway race of existence, all detentions and delays. You are to-day arrived at what is, perhaps the most important station in this journey, for you have now reached, and are about to cross, the great boundary line between the light academic life of the young student, and the hard practical life of actual manhood. Ere you pass this line however, allow me, in right of my office as your promoter, to stand athwart your path for a few minutes, and speak of the prospects, and the obligations which await you on its further side, as medical practitioners.

And, first, let me venture to warn you, in all kindliness of spirit, that the bright and brilliant hopes which some, which perhaps most of you, entertain of rapid and almost immediate success in medical life, are, I fear, doomed to certain failure. I speak specially of the Graduates among you, who are about to engage in civil practice; and these constitute a vast majority of your number. For the painful trammels and degrading neglect, to which medical officers in the public services of the British army and navy are still so discreditably subjected, are such as debar and deter men of ability and independent spirit from permanently joining their ranks. Besides, even the very highest grades of the public medical service, are scarcely in themselves objects of honourable ambition. The gentleman who is at this moment at the head of the medical department of our great army in the East—a physician, I believe, of high talents and energy, Dr Hall—undergoes all the enormous responsibilities and work of that office, and all the enormous abuse and obloquy too, connected with the discharge of it, for a salary of two guineas a day—an income far less than that made by many a second or third rate village apothecary in England. Most of you, I repeat, are destined for civil practice; and again I warn you, that, as the general rule, such practice rarely or never comes speedily, in a pecuniary form, to the young physician, however high his aspirations, and however great his talents may be. The same fact holds true of most other professions, and trades; but it holds, and has ever held, especially true of medicine. We have little or nothing on record to unfold to us the secret history of the early struggles, trials, and difficulties of medical practitioners, except in the published biographies of a few of those men, whose supreme talents have ultimately carried them to the very foremost rank in their profession. The history of these princes and chiefs of the medical art, is in every known instance, I believe, an illustration of what I allude to,—the slowness and difficulty with which practice, or at least remunerative practice, gathers around the door of the young physician, especially in our larger communities and cities. A former graduate of this University, Dr John Cheyne, who, a quarter of a century ago, was by far the busiest, and best employed physician in Dublin, tells us in his interesting autobiography, that during the first half of his second year's settlement in the Irish capital, and when he had already reached the thirty-fourth year of his age (an age which it will be long before some of you yet attain), his fees only amounted to about three guineas. Nine years subsequently, he was making L.5000 annually. Not above one or two physicians in London ever drew, I believe, a larger professional income, or perhaps ever advanced more early into full practice than Dr Chambers; yet, during the fifth year of his practice, when he was already thirty-four or thirty-five years of age, he did not receive above L.211 in fees. Seventeen years subsequently, his annual professional income is stated to have reached nearly to L.9000. His great predecessor in high London practice, Dr Matthew Baillie, drew above L.11,000 in one year; and yet with all the interest of the Hunters and others, to aid him in his outset, his first march upwards was, like that of all others, very slow and difficult, and to quote the words of his biographer, Dr Wardrop, before "he found himself fairly established in practice," he had been already for twelve years physician to St George's Hospital, and for nearly twenty years a medical lecturer. Dr Baillie's uncle, the celebrated Dr William Hunter, who spent a large fortune, gained by his profession alone, upon the collection of that splendid museum which now enriches the University of Glasgow, was so hard-pressed for money during the years of his earlier struggles in London practice, that he was obliged to postpone for a fortnight, the commencement of his third season of lectures, in consequence of not having money enough to pay the expense of the usual class advertisements. Nor have our greatest surgeons been usually more successful than these our greatest physicians, in the first stages of their professional career. In 1788, the son of an English clergyman attended the medical classes of this University, and lived on the third flat in Bristo Street, in a room which cost him six shillings and sixpence a week. In after life when swaying the surgical sceptre of England, as Sir Astley Cooper, his professional income, in one single year, amounted to L.23,000; and yet, during the first twelvemonths after he settled down in London, and was working as a lecturer on anatomy and surgery, his receipts from private practice only amounted to five guineas. The distinguished surgeon, who, by Sir Astley's death, was left at the head of the surgical school of London, Sir Benjamin Brodie, did not, as we are told, in a late biographical sketch of him, get into "full practice" till 1825; yet he had been lecturing, practising and publishing since 1805, or for twenty long years previously. "I well remember," observes Sir Benjamin, in one of his published works, and when speaking of the early struggles and disappointments of young medical practitioners, "I well remember, in relation to myself, how often, in the intervals of occupations, I have contemplated, with something like dismay, the prospect which lay before me." And I believe almost all medical men have had occasion, in early professional life, to participate more or less deeply in that feeling. All my medical colleagues around me, will probably, like myself, be ready to subscribe to the truth of the observation, in their own individual instance. No doubt, also, fate holds in store a similar destiny for you. And, if a period of probation and trial is thus ready to meet you at the outset of professional life, be you also ready, with brave and stout hearts, to meet it.

This impending period, however, of watching and probation, cannot and dare not be with you a period of rest and idleness. On the contrary—if you do not wish to sink even below mediocrity—your pursuit of medical knowledge, during this period, must be increased instead of diminished, redoubled instead of slackened. It must be, in truth, a term of fresh and fervent professional study—of earnest and manful professional work. For, during it, you have to confirm and correct, and—still more—to extend and enlarge your present stock of information, on a thousand different points, and in a thousand different directions.

In the practice of some ancient Continental Universities, it was formerly the custom to present the medical graduate, on the day on which he gained his doctorship, with a ring, a barrette, an open and a shut book. The ring betokened the solemn espousals of the young graduate to the medical profession. The barrette indicated that he was, at the same time, set apart and consecrated as a Priest to Science. The open book was given as an emblem of the things already taught to him; while the more significant closed volume, with which he was presented, was meant to typify that far larger and greater extent of professional knowledge which it was yet the study and business of his life to acquire. You have specially to peruse, and fervently pore over, the pages of this shut volume, during the next few important, and to you, indeed, priceless preparatory years of professional life. On the way in which you use or abuse these years of your existence, doubtless, depends in a great measure, your ultimate success or ultimate failure in your professional career. During the next lustrum or two of life, you cannot reasonably hope to collect any large amount of medical fees, but you must collect, during it, a vast storehouse of medical knowledge; you cannot expect to "make money"—but you have each to do what is of still higher ultimate moment, viz., to make for yourselves such a professional reputation as will, in the end, bring you competence, if not riches; for in that reputation truly lies the whole secret alchemy of professional success. You have, above all, to familiarize yourselves practically, and by incessant study and experience, with the actual phenomena and treatment of diseases. And do not argue yourselves into indolence, and the neglect of this, on the plea that you, forsooth, can have no proper opportunities of doing so. An active mind, and a willing hand, will ever find plenty of work to do. Wherever you may settle down in this world, you will have around you abundance of the sick poor. The professional care and charge of them has always been the heritage of the young physician; and when viewed in all its bearings, it is a rich heritage too. Amid them or others, you must render yourselves familiar with all the many unteachable items and details of actual practice; and you will elaborate and extend the practical knowledge of your profession, as well in attendance upon the pauper as upon the millionnaire. For in the richest of your patients, you will find, after all, only a sick brother man; and the poorest patient, for whom you will ever prescribe, is nothing less, and nothing more.

There are other matters pertaining more personally to yourselves, which you have specially to attend to during the next few years of your professional probation and preparation. You have, each of you, to endeavour, as far as in you lies, to mould and form your moral and intellectual characters, both as men and as physicians, so that you may be able to discharge, with all possible happiness to yourselves, and with all possible profit to your patients, the personal duties connected with your professional calling. In all your communings, either with your own hearts or with the world, in all your intercourse with men, and books, and nature, strive to cultivate and strengthen every good principle and qualification that can adorn the character of the true physician,—application, energy, self-reliance, gentleness, cheerfulness. On the other hand, search out, each of you, in a faithful and humble spirit, your own individual faults and deficiencies of character (for who amongst us is free from them?), and early and earnestly strive to correct them. In the language of Chilo, "Man, know yourself!" and again, in the language of a far higher authority, "Physician, heal thyself!" Uproot in your mental characters and habits whatever is evil, and try to replace it with whatever is good. Remember, the garden of the mind is always certain of itself to grow weeds, if you do not train it to grow flowers.

The profession which you have this day espoused, is, as I have already strongly stated, beset with early struggles and difficulties; but it is one also in which, to quote the words again of Sir Benjamin Brodie, "no one who uses the means proper for the purpose, will fail to succeed sufficiently to gratify a reasonable ambition." "You must (he adds elsewhere) persevere, and you may do so in the full assurance that the reward will come." Medicine, however, is not a profession which almost ever leads to the actual accumulation of very great wealth. Large fortunes are rarely made in it; far more rarely, I believe, than in any other profession or trade which it is possible to name. If the ambition and object of your hearts, therefore, is the mere acquisition of money, then throw your newly won medical honours aside, and go at once to the mill, or to the mine, to the counting-house, or to the exchange. They offer far more sure and ready avenues to hoarded wealth than medicine does. But surely the secret of a human being's usefulness and happiness in this life does not really consist, as many seem to fancy, in merely accumulating money. There are other objects and aims far more noble, and far more worthy of the gifts and powers which God has given you in trust. You are educated and destined for higher work, and for holier uses and purposes, than the greedy grubbing-up of gold, either out of earth-holes at Ballarat, or out of the pockets of your patients. You have undertaken to-day—and for life-service too—a charge and a commission of far more honour and dignity to yourselves, and of far more moment and importance to your species.

All, I believe, will willingly grant that the clerical profession stands in unspeakable importance above the medical, and above all other professions, inasmuch as the interests of the soul are infinitely more momentous than the interests of the body, and the concerns of eternity infinitely more weighty than any concerns of time. But the profession which you have this day adopted, is, in many respects, the most important secular profession which a man can possibly follow. Its importance depends upon the priceless value of the objects of the physician's constant care and study, viz., the guardianship of the health and of the lives of our brother men, and the defence of the human body and human mind against the attacks and effects of disease. Other pursuits become insignificant in their objects, when placed in contrast with this. The agriculturist bestows all his professional care and study upon the rearing of crops and cattle; the merchant spends his energies and attention upon his goods and his commissions; the engineer upon his iron wheels and rails; the sailor upon his ships and freights; the banker upon his bills and his bonds; and the manufacturer upon his spindles and their products. But what, after all, are machinery and merchandise, shares and stocks, consols and prices-current, or the rates of cargoes and cattle, of corns and cottons, in comparison with the inestimable value and importance of the health and the very lives of those fellow-men, who everywhere move and breathe and speak and act around us? What are any, or what are all of these objects, when contrasted with the most precious and valued gift of God to earth—human life? And what would not the greatest and most successful followers of these varied callings give out of their own professional stores, for the restoration of health, and for the prolongation of life; if the first were once lost to them, or the other merely threatened by the dreaded and blighting touch of disease?

Medicine has, I repeat, no large promises of wealth and fortune to offer to its votaries. Nor can it profess, either, to attract followers to its standard by the hopes of heraldic ranks and titles, or the glitter of coronets. If your souls long after such worldly honours, then leave the sick-room and hospital-ward, and go in search of them where they are alone to be found—in the senate-room, in the forum, or in the camp. You may have a chance—though not a very great chance—of obtaining such an object, if you will successfully devote your life-blood and energies to serve, or mis-serve, your country in connection with any leading political party—it matters not which, as all are uppermost by turns. Or if, as a lawyer, or rather as a law-pleader, you will particularly distinguish yourself above your fellows, so as to

> " . . . . . . make the worse appear
> The better reason, to perplex and dash
> Maturest counsels;"

then, betimes, the ermined gown of the judge may bedeck your shoulders. But, above all, perhaps, the easiest and surest path at this moment to a corner in the peerage book is, for a man to destroy diligently and successfully, as a soldier, as many as possible of his fellow-men. These, and other such deeds may gain for you, in this world, nobility and titles. Medicine, at all events, has no such bribes to offer you;—and perhaps it is fortunate, after all, for the purity and character of medical science, that it is so. Yet, does it not seem strange in the abstract, that such should be the settled practice of a community generally reckoned civilized, such as ours? In these stirring times, for instance, when there are ringing, ever and anon, in our ears, the sounds of distant battle, and when the minds of young and old are carried away by the

> "Pride, pomp, and circumstance of *glorious* war,"

look for one single moment at the respective claims upon the gratitude of human nature pertaining to the profession of arms and to the profession of physic. And let me cite their relative worth and work in the words of one who belonged to neither of these two professions:—

> "How striking is the contrast," says Robert Hall, "betwixt the art of medicine and the art of war! The last of these, war, has for its object the destruction, the first the preservation, of the species. The mind of the warrior teems with the machinations of ruin, and anxiously revolves, among different schemes that present themselves, which of them shall scatter destruction to the widest extent, and with the surest aim; his progress is marked by devastation and blood, by depopulated fields and smoking villages, and the laurels that he wins are bedewed with the tears of widows and orphans. The acclamations which he wins from one portion of his species, are answered by the curses and execrations of another; and the delusive splendour, the proud and imposing array with which he continues to gild the horrors of his profession, are but the pomp and retinue of the King of Terrors. The art of healing proceeds (with a silence and secrecy, like the great processes of nature) to scatter blessings on all within its reach; and the couch of sickness, the silent retreat of sorrow and despair, are the scene of its triumphs." "The mind of a physician," Mr Hall further observes, "is continually pregnant with expedients for the mitigation of pain, the extinction of disease, and the prolongation of life;—a course of thinking which fails not to cultivate and mature the seeds of benevolence. His success is in exact proportion to the benefits he imparts; and his triumphs are signalized by the tears of gratitude, the gratulations of friendship, and the raptures of returning health."

To these eloquent remarks, let me only add, that even in the two relative competitions by the soldier and the physician,—the one for the destruction, and the other for the preservation of the lives of his fellow-men, the efforts of medicine have immensely outstripped the efforts of war.

During the last year there have died directly in battle, or from the effects of war, on the banks of the Alma, and within and around Sebastopol, perhaps some 80,000 or 100,000 men. But among the population of the four principal nations engaged in the present war, one single medical discovery—vaccination—saves from otherwise certain death, in every single year, more than double that number of human lives. Indeed, a single drop of contemned cow-pox matter, with its infinite power of multiplication, is far more potent to save human life, than all the war-implements and inventions, contained in all the arsenals and citadels in the world, are potent to destroy it.

For making a discovery, by which the lives of tens and hundreds of thousands of his fellow-men have thus been, and continue to be annually saved, the Parliament of Great Britain grudgingly rewarded Dr Jenner—first with ten, and then with twenty thousand pounds. But if, on the contrary, any soldier should at this moment discover a means, or so exercise the present powers of his art, as to destroy effectually, by one fell swoop in war, even fifty or a hundred thousand human lives, he would doubtless be in a very fair way to obtain the coronet and pension of a Baron or an Earl; and if the human slaughter which he committed were only doubled, or at all events trebled, probably a Marquisate or a Dukedom might be his award. Yet how true and terse was the letter of the Syracusan physician, Menecrates, to King Philip of Macedon: "It is," boldly wrote that disciple of Esculapius to the royal warrior, "it is your work to kill men; it is mine to save them." And, begging the pardon of our military friends, I stand here and maintain, that the profession of Menecrates was, and is, a more noble, and a more glorious profession, than that of Philip!

The great majority of the newly-made physicians, forming your ranks here to-day, are natives of Europe, and of the British islands. But among your numbers are also Graduates collected from many other different parts of the world,—from America, from Asia, and from Africa. To this University, situated though it be almost on the uttermost verge of Europe, these gentlemen have come, in search of medical education and medical knowledge, like (if I may use the words of Milton)

"Embassies from regions far remote
In various habits; . . . .
. . . . . . Some from farthest south
Syene, and where the shadow both way falls;
Meroe, Nilotic isle; and more to East . . . .
From India and the Golden Chersonese."

To all of these strangers and natives of other lands, I am sure that you, Mr Principal and Colleagues, will willingly join me, both in offering our best congratulations on the medical honours which they have this day won, and in wishing them a safe and happy return to those distant homes and hearths where the warm welcome of many a dear relative and fond friend, impatiently awaits them. But there are also, among these strangers and sojourners at our University this year, some young graduates who do not belong even to the same section of the great family of man as we ourselves do.

We have all of us, for example, rejoiced on this occasion, to welcome here to the "*summi honores medicinæ*," one who has come to study medicine from a distance of some 15,000 or 20,000 miles; from a kingdom the most marvellous in the world—a kingdom which, at this present hour, contains within its enchanted wall, one whole third of the living human race;—from a community that has remained in nearly the same state of strange stereotyped civilization for the last twenty or thirty centuries, and that knew of the mariners' compass, and small-pox inoculation, long, long before these great truths were dreamed of by the learned in Europe;—from an empire that was comparatively advanced in various useful arts and sciences, and in medicine among the others, in those far distant times, when Julius Cæsar first invaded Britain, and when our rude and savage ancestors in these islands were still tattooing their skins with woad, and offering up human sacrifices at the stones of the Druids.

The high station which Dr Wong Fun has won for himself among you, as a most meritorious and modest student, and the high prizes and honours which he has carried off, when he descended with you into the arena of competition in the class-room, afford us every hope, that he, the first Chinese, I believe, who has ever graduated at a European University, will form, among his countrymen, a most able representative of the medical arts and sciences of the Western World. I am sure that all of us—professors and graduates—do feel an additional interest in his future career and welfare, seeing that he returns to his own distant home, not as a physician merely, but also, I believe, as a Christian Medical Missionary; seeing that he carries back with him, not merely a full knowledge of modern European medical science, but carries back with him also—like other messengers of yore, out of the East—"glad tidings of great joy," to scatter among his three hundred million of countrymen. And may God, in his Providence, protect and prosper him in his mighty and magnificent mission.

There are further, among your ranks to-day, several natives of a kingdom which claims an antiquity higher even than that of China. And amidst the numberless other marvels and glories for which Egypt was formerly famed among the ancient nations of the earth, not the least of its many claims for distinction, was the great number, as well as the high character of her physicians. Several of the oldest Greek and Roman poets and writers, from Homer and Herodotus, down to Pliny and Diogenes Laertius, allude, in marked terms, to the highly advanced state of the healing art on the banks of the Nile. In the Odyssey, Egypt is described as a country, where every physician possessed knowledge above all other men, for

> " . . . . their patron god imparts
> To all the Pharian race his healing arts."

"All places in Egypt," says the father of history, "abound in physicians;" and Plato, when sick and invalided during his travels in that country, is averred to have found almost every Egyptian skilled in the healing art.

But in this, as in other respects, a spirit of change, and of desolation, has for ages smitten that devoted land. And, in accordance with its predicted doom, its twenty thousand cities have fallen, and the land has been made "destitute of that whereof it was full." When your co-graduates, Dr Badre (who, my colleague, Dr Traill informs me, very nearly carried off, a few days ago, his highest class prize), Dr Katib, Dr Mustapha, and Dr Sovbki, return, as they shortly will do, to their native land, we trust that their remembrance of the ancient glory of Egyptian physic, will prove one incentive to them, among others, for labouring assiduously and earnestly, to diffuse a knowledge of modern medical science among their countrymen. And let us fondly hope, that under their patriotic exertions, and under those of their future successors, happily fostered by the patronage of the Egyptian government, the state of medical science and medical art in the ancient kingdom of the Pharoahs and Ptolemies, will become gradually renovated and restored, so that betimes Egyptian physic may, after a long sleep of centuries, rise again, like the fabled Egyptian Phœnix, from its ashes, and become reanimated with new life and vigour.

But I have detained you too long. The moment of our final separation as teachers and students is more than come. I dare not detain you longer from the work that awaits you in the world without. In pursuing and searching out that work, those assembled here now, will speedily be scattered to their relative fields of labour, over many and distant regions of the world. For wherever man dwells, in the city or in the field, Azrael and his pitiless ministers of destruction and disease have taken up their dwelling with him. Wherever man flies—to whatever quarter of this wide earth he tries to escape, bodily sorrow and sickness still unrelentingly follow him. To you he earnestly appeals for help and succour against these enemies of his life and happiness. And we now send you forth from these Halls, authorized by the diplomas which you hold in your hands, to administer to him, under his afflictions and agonies, all the relief which the most advanced resources of medical science, are able to impart. We despatch you as Argonauts across the rough sea of life,—not in search of a shadowy golden fleece,—but with a far higher and holier commission, viz., to carry hence the rich and blessed gifts of medicine to all ends of the habitable globe; to give, as humble agents under a Higher Power, ease to the suffering, strength to the weak, health to the sick, and sometimes life to the dying; to distribute everywhere freely a knowledge of those means that are best fitted to defend our fellow-man against the assaults of disease, and to quench within him the consuming fire of sickness; to close his wounds, and still his cries of pain and anguish; often to upraise his hopes when his heart is drooping and downcast, and sometimes to elevate him again to the dignity of humanity, when humiliated by the bereavement of reason; to assuage at least, and alleviate his maladies and miseries when you cannot arrest them; ever to soothe even when you cannot save; always to be guardians of his health, and often arbiters of his fate. And take with you the fervent hopes and prayers of my colleagues and myself, that every success and every happiness, may attend upon you in the discharge of these, the sacred and solemn duties of your future lives.

Part Second.

REVIEWS.

Practical Treatise on the Diseases of Children and Infants at the Breast; including the Hygiene and Physical Education of Young Children. Translated from the French of M. BOUCHUT, with *Notes and Additions*, by PETER HINCKES BIRD, F.R.C.S., Author of the "Jacksonian Prize Essay for 1849, on Erysipelas." London, 1855.

THE work, of which this is a translation, is now ten years old. On its first appearance, it was well received in this country as well as on the continent; and growing in favour, a new edition was published three years ago, exhibiting a very decided increase in bulk as well as in real merit. It was at first brought out as a "*Manuel,*" but M. Bouchut now converted it into *un Traité dogmatique de toutes les maladies chirurgicales et medicales de la première enfance.* Many errors in the first edition were remedied, many deficiencies supplied, and a great amount of new matter added, especially in the first and second parts of the work, which treat of the hygiène and physical education of young infants, and the general pathology of the maladies of early life. The enlargement, however, has not perhaps increased its readableness as a book, so much as it has enhanced its value as a work for consultation; for the author's style is somewhat formal, and there is generally such an effort at completeness—such an excessive particularity of definition and statement—at times even so as to insult the common sense of the reader—that despite the high interest and importance of the subject, the continuous perusal of the book for any length of time becomes wearisome. The great amount of minute information, sound scientific observation, and earnest practical remark found therein, if enforced by clear condensed statement, and set off in easy language, and with graphic descriptive power, such as characterises the lectures of West on the same subject, the first edition of which we some years since had the satisfaction of reviewing,[1] would have made it a first rate book, one to be read pleasantly as well as to be consulted profitably.

The noble work of M.M. Barthez and Rilliet, having been devoted to the consideration of the maladies of children, occurring from the age of fifteen months to that of puberty, M. Bouchut, stimulated doubtless by its brilliant success, made the attempt to produce a similar work on the diseases of the newly born, and of infants at the breast. In the execution of this design, Bouchut appears to have gathered the greater part of his information during two years service under M. Trousseau in the Hôpital Necker, where many infants were carefully *wet-nursed;* and the doings, sayings, and writings of this *chef* are quoted largely throughout the work, and most deservedly. Our author has also most abundantly availed himself of the researches and observations of others of the French school, such as Donné, Becquerel, Vernois, Barthez, Rilliet, Barrier, Billard, Valleix, Richard, Guersant, and many others besides; so that, although during the seven years intervening between the two editions, M. Bouchut appears to have obtained considerable personal experience of the diseases of young children, the work cannot be regarded otherwise than as a laborious compilation and clever digest of the opinions of others; and all the various subjects connected with the welfare of the fœtus *in utero,* as well as the maladies of the child during the first moments of its new existence, and while continued at the breast, are treated more as a series of monographs than as a system of practice. M. Bouchut, however, very frequently forgets that his subject is limited to the tender age of lactation, and hence we often meet with impossible circumstances, such as those described:—"Copious evacuations bring to light lumps of apple, carrots, undigested beans, etc., which, by their presence in the stomach, etc.," p. 196. We should have been better pleased also with Bouchut's labours had he employed more frequently than he has done, in his quotations, those marks of reference which, according to usual custom in English literature, enable the reader to discover to what extent the words as well as the opinions of authorities are adopted; and we have been somewhat provoked to find that Mr Bird, in his notes, has to such a large extent proceeded on the same plan. We should have liked, moreover, to have met more frequently, in the pages of M. Bouchut, with the names and opinions of British pathologists and practitioners. For although, certainly, we do not possess complete systematic works embracing the entire subject of his volume, yet we have many lectures, treatises, and papers, in which original and highly valuable observations are to be found on almost everything relating to infant life, nourishment, growth, physical education, disease, and death, and from which a most complete system of enlightened physiology, hygiène, pathology, and practice, might have been gleaned. In going through his chapters, we have experienced a continual gnawing grudge that the continental worthies referred to in almost every paragraph, should have such a vast amount of scientific and practical discovery attached to their names, when many—we may say the greater part—of the same views and resources were either taught us in our youth, before MM. Barthez and Rilliet, Valleix or Trousseau had written or published a single observation; or had long since been made known to us by our own rich systematic and periodical literature; or had been impressed on our own minds by abundant practical experience. M. Bouchut has even omitted names which we could scarcely have supposed it possible for him to pass without notice. Thus, for instance, in speaking of the protection afforded against smallpox by vaccination, there is no mention of the name of our illustrious Jenner, although he takes care not to omit noticing M. Bretonneau as the inventor of the capillary tubes for preserving vaccine virus. Viewing, however, the treatise of Bouchut as a whole, it is, with all its faults, wonderfully complete; it is, in fact, a sort of cyclopædia of infantile hygiène and disease; and it cannot but be found most valuable by all engaged in the study of this interesting department of medical science.

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[1] *Monthly Journal of Medical Science*, June and August 1849.

With this general estimate of the value of M. Bouchut's labours, we must be content. On several opinions and practices advocated by him we would fain offer criticism; but the work has been so long before the profession, and noticed at the proper time in the principal journals, that any analysis of its contents, or formal discussion of the doctrines therein propounded, would now be quite out of date and place.

Our chief duty at present, therefore, appears to be with the labours of Mr Peter Hinckes Bird his translator and annotator; and, in the first place, we most cordially thank him for introducing this really good work to the notice of British practitioners, hundreds of whom, we dare say, would never have thought of studying so large a volume in the French language, although many probably might have taken an occasional and cursory glance at it. It is now presented to the profession in a more generally accessible form; and, with the copious notes added, it is indeed well worthy of a place in our libraries, and we hope that it will not be allowed to become dusty on the shelf.

Mr Bird deserves great praise also for the vast amount of labour necessarily bestowed on the translation, and in general on the *getting up* of so large a work, extending to no less than 776 closely printed octavo pages.

The translation itself is throughout most faithful, but, to our taste, it is generally much too literal, much too "*school-version*" like, and wanting in classical freedom and grace. Had it been rendered with fewer *Gallicisms*, and with more of a free English idiom and vocabulary, the work would, we doubt not, have been better appreciated, and more readable. Mr Bird's own style, however, does not appear to us to be particularly distinguished for ease or gracefulness; at least, it is not exactly what we should have expected in the writing of one who proclaims himself to be a prize essayist: let the preface be taken as a proof of this opinion. This may to some extent account for the occasional stiffness if not inelegance of the translation; for as M. Bouchut's phraseology is somewhat formal and precise, as we formerly remarked, the new garb in which it is clothed makes it still more cramped, and at times even awkward, as a stout full-grown man might be supposed to be in somewhat juvenile tights. That we may not be considered hypercritical, finding fault without sufficient reason, we shall submit a few examples of the defects above mentioned. Thus, at p. 400, the order or arrangement of nature is spoken of as "the *disposition*" of nature; then, at p. 71, "the influence of these general *dispositions* of the nurse on the health of the children" are alluded to, when the tendencies or the peculiarities of the nurse are evidently meant; again, at p. 78, "the dangers which may result from the bad *disposition* of nurses," should simply have been the bad condition of nurses; and, once more, as to this word, at p. 593, the "impressionable *disposition* of the subject" is noticed, when an excitable or susceptible state is implied. In the English language, the word disposition is seldom used excepting in reference to the tendency, temper, or inclination of an individual, and it is intrusive affectation to force such terms into our literature. But to proceed with our proof, we have a great many times, see for example at pp. 134, 149, 375, 512, and 518, the "vices of conformation" spoken of, instead of faults or defects of structure. Then, again, we have the word "deformations" used frequently, as at p. 94, when it is said, that "acute enterocolitis is accompanied by a speedy deformation of the features," and "the deformations of which the pupil is the seat," p. 97, when a little change in the structure of the sentences would have permitted a more simple method of stating that the pupil or features were altered, deformed, disfigured, or distorted. Then there are such terms as these constantly introduced, "laborious dentition, p. 127; "the instability of dentition," p. 401; "the breast which is unoccupied," p. 36; "suspended to the breast," p. 44; "she experiences a profound emotion," p. 8; "the impression is more profound and serious," p. 87; and, once more, "M. Hiembord has observed it with exactitude," etc. Now, all this has arisen from employing a slavishly literal translation of the French words "*disposition*," "*instabilité*," "*inoccupé*," etc., which we must consider either as remarkably simple or very affected in the translator. Such words cannot always be received in the same strict signification, even although they may have already obtained a place in the English vocabulary. It is thus that so many amusing instances of inapplicable words have been uttered by Englishmen attempting to express themselves in French, and by Frenchmen in English. For example, not long since, a French pastor, in addressing a certain ecclesiastical assembly in this city, under the impression that the word barren signified bald, begged to apologize for his diffidence in the presence of the moderator and so many other venerable and barren-headed fathers! And again, one of the most ludicrous of these blunders which occurs to us at present was the phraseology of a prayer offered up for the late Dr Chalmers by another Frenchman, who, having had the meaning of the Scotch word "kipper" explained to him at the breakfast table, when kippered salmon was produced, afterwards, at family worship—pleased with the addition to his vocabulary

—fervently implored that his venerable friend might be long kippered!

But the most absurd, nay amusing of all the literal renderings which we have met with in this translation of M. Bouchut, is the constant mention of the cantharidis plaster as a *flying* blister!—(*un vésicatoire volant*, pp. 159, 181, 243, etc.) though after all, perhaps it would be safer if the blisters so frequently recommended by M. Bouchut were not allowed to *rest* long on one part, for, in our opinion, they can scarcely ever be applied to infants under fifteen months without imminent hazard, both from the local and the general irritation which is produced.

Many more examples might be given of poor translation and wrong signification. Thus, at p. 106, when speaking of gangrene in the mouth of a child, it is said, "from the mouth an infectious odour may arise which offends the nose." Now, here "*une odeur infecté*" only means *tainted*, for there is nothing really infectious in it. Then, surely Mr Bird might have made this sentence less clumsy and more intelligible: "It is not always an easy matter to determine the influence exercised by the process of dentition on the development of diseases of children at the breast. It is evident that it is not sufficient to prove the appearance of a disease in the course of a dental evolution, and to conclude from thence that it is the cause of this morbid manifestation; we must further appreciate the relation which unites these two phenomena together, and to discover if their existence is the result of a coincidence, or if, on the contrary, a relation of causality should be established between them," p. 403.

And to give but one other example of bad translation and stiff and confused phraseology, we shall quote the following passage, the latter part of which appears to us to be pure nonsense.

"The bronchitis of children at the breast presents itself with a symptomatic expression quite different from that of other children of more advanced age. From the period of birth to the end of suckling, and even during some years after, this disease presents very considerable difficulties of diagnosis. There is only one method of surmounting them, by separately describing simple bronchitis and general bronchitis, the first easily characterized, the second, which must be confounded with lobular pneumonia, of which it constitutes the first stage," p. 293.

While, however, Mr Bird sometimes translates so very literally as to deprive a sentence of its force, nay, of its sense, he has in one instance at least, namely, on the title page of the work, perpetrated a freedom which is quite unwarrantable. M. Bouchut's work is entitled, *Traité Pratique des Maladies des Nouveaux-Nés et des Enfants a la Mamelle, Précédé d'un Précis sur l'Hygiène et l'Education Physique des Jeunes Enfants.* Mr Bird, however, has rendered it a "Practical Treatise *on the Diseases of Children* and Infants at the Breast, including the Hygiène and Physical Education of young Children." If this is intended as a free translation, it is erroneous and absurd; if it is meant to catch the popular eye, so as to serve the purpose of an advertisement for practice, or to increase the sale of the work among parents and guardians, whose interest is not so limited as to concern merely the newly born and infants during suckling, it is decidedly reprehensible. The practice of using popular names and phrases on the title page of works avowedly scientific in character, should meet with no favour.

The sight of the above wrong translation at the very beginning of the work, startled us exceedingly, and led us hastily to infer that the work throughout would be one tissue of blunders, which, however, we were agreeably disappointed to find not to be the case. For a work of such magnitude we willingly admit that great allowances should be made. Mr Bird must, doubtless, have occasionally become drowsy under the drudgery of translation and transcription; but there are rather too many indications of carelessness of one kind or another to be passed without notice. The *errata* at the beginning of the work should have been made much more copious. The printer, doubtless, must come in for a share of the blame; but the instances are too numerous and glaring for such an apology to suffice. Besides, more "phenomena" than those noticed in the *errata*, there are other words, mis-spellings and grammatical errors, requiring to be corrected. Thus, for example, there will be found at p. 52, "some one, etc., *they*;" at p. 71 "the mother, etc., *they*;" at p. 182 "sections of the tendons, etc., *it*;" at p. 480 "newly born infants, etc., it;" and again at p. 480, "the disappearance of hiccough may be effected by giving some drops of pure vinegar, antispasmodics and opiates internally, but *this means is* not suitable for children," etc.

After so many inaccuracies we should be afraid to trust implicitly to the correctness of the formulæ given at the end of the book; but we have not time to compare the translation with the original, and now pass on to estimate briefly the value of the notes added by Mr Bird. These notes have been gathered from all sources; and many of them are highly interesting and valuable. Some are designed to confirm the statements and opinions of Bouchut; and others to supply the lack of information on rare affections, and on the more uncommon forms of disease. We wish, however, that Mr Bird had quoted British authorities even more largely than he has, as a contrast to the notions and practices of the French school. Besides noticing, for example, the almost universal aversion in this country to the application of vesicatories in the case of young infants, to which we have already alluded, there are many of our best resources in the treatment of infantile disease, which Bouchut does not appear to estimate sufficiently, or does not mention at all, but to which Mr Bird, as an English practitioner, might have given due prominence. Of these we shall only, however, mention two—namely, free gum scarification and the use of hot and cold water in the form of baths, douches, etc. In France the former little operation has never been looked on with much favour, and Bouchut, in his chapter on dentition, as well as in other parts of the work, evidently regards it with a degree of coolness. But certainly we did not expect to have met with such a marked omission as is made in regard to the remedial use of baths. Thus there is no notice whatever of the utility of the warm bath as a means of hastening the appearance of a full eruption in certain cases of scarlet fever or measles, or for allaying the irritability and febrile excitement frequently connected with difficult dentition and catarrhal attacks; and there is no notice whatever of its occasional efficacy in phreno-glottism, in the threatenings of pure croup, or in eclampsia itself. Then the alternate hot and cold plunge bath, which we are accustomed to regard as the most important remedy in the apoplectic asphyxia of newly born infants; or the combination of the warm bath to the body and the cold douche to the head, which is by far the most certainly efficacious means of cutting short attacks of phreno-glottism and eclampsia, are not alluded to. One of the resources advised by Bouchut in the treatment of asphyxia is somewhat amusing, while it is not likely either to be of much avail, or to be very generally available. It consists in "some douches of vinegar, or with brandy and water made over the chest by the attendant, who fills his mouth, and forcibly projects this liquid on the walls of the chest, at the same time exerting lateral pressure on this cavity to replace the action of the paralysed muscles," p. 373. One of Bouchut's recommendations as to the treatment of eclampsia is also worth mentioning. He says, "If the above attentions are not sufficient to calm the convulsive phenomena, we can, with some chance of success, try to produce a violent shock in the sensations of the little patient, by exposing it, stripped of its clothes, for several minutes in the open air, or by laying it on a marble table. So lively and so penetrating a sensation as this seldom fails to produce its effect," p. 196. The atmosphere is certainly available enough, but marble slabs are not found in very many houses in this country. Cold water, however, is, and its free use, poured on the vertex in a small stream of about a foot in height, will be found most satisfactory, more especially if the little patient's body is at the time immersed in hot water.

Had Mr Bird's notes included many original observations, or furnished many notices of his own experience, there might have been more scope for criticism. So far, however, as we can discover, his experience is not referred to more than three times; *first*, as to the benefit derivable from the external application of the compound iodine ointment, combined with the internal administration of the iodide of potassium in subacute hydrocephalus, p. 244; *second*, in the occasion of a case of death of a portion of the inferior maxilla following a course of mercury, p. 416; and *third*, as to the frequency of congenital cataract, and the safety of the usual operation at a very early age, p. 670. Nor has Mr Bird, in very many instances, hazarded an opinion of his own or in opposition to that of Bouchut. The following will, we think, very nearly comprise the full amount of merit and demerit in this respect. At p. 209 he says, "that many facts are opposed to Bouchut's view that central softening of the brain in granular meningitis is the result of maceration, and coincides with Rokitansky in considering it as 'acute œdema of the brain, often, although not universally, associated with inflammation.'" In this opinion we quite concur. Again, in noticing the advice of Bouchut in regard to articular deformity—particularly cases of club-foot—arising from muscular atrophy, that "we must wait until the age of six or seven years without discontinuing local remedies, before having recourse to special orthopedic operations, which are sometimes useful," Mr Bird says, "it is not at all necessary, as here advised, to wait until the age of six or seven years for the performance of orthopedic operations; sections of the tendons for club-foot may be performed as early as six weeks, and probably after the age of two or three months; the earlier *it* (!) is performed the more effectual is the cure," p. 182. This is sound advice, which we afterwards find repeated in the note on the special subject of club-feet, p. 703. With Mr Bird's remarks on Bouchut's notions regarding infantile icterus we cordially agree, only going a little further in our views. He says, "This assertion that the yellow colour of new-born children depends on the slow absorption of the blood infiltrated into the tissues at birth, would appear to be erroneous, from the fact that not half of the new-born children are thus affected; but that, on the other hand, it seems most likely to be the result of slight jaundice, from the great frequency of this disease in new-born children, and the influence which purgatives exert in removing the yellow colour of the skin," p. 91. Quite correct; but then again Mr Bird says in another place, "M. Bouchut is probably incorrect in his statement that icterus always results from an inflammatory affection of the liver. In many cases it appears most likely due to the passive state of congestion so frequently observed in the liver of new-born children, to which Billard drew attention some years ago," p. 534. Now, we think that M. Bouchut is not merely "probably incorrect," but that he is decidedly wrong. We doubt much if the icterus of the newly-born is ever inflammatory in its origin. In infants, as in adults, it is a mere symptom of various states, functional and organic, of the liver, cystic and biliary ducts, and of the hepatic circulation—generally of a somewhat mechanical nature, assuming various shades of severity from the common "yellow gum," according to the meaningless phraseology of "the monthly nurse," to those uniformly fatal cases—several of which we have witnessed—in which hæmorrhage from the umbilicus takes place. That jaundice should often occur in the slighter forms, is not to be wondered at when we consider the great size of the liver, and the loading of the biliary and cystic ducts in the latter days of fœtal existence; and the very sudden change which takes place at birth in the current of the circulation. And while we have every reason to expect that in such instances a healthful change will be the result of a gentle laxative, or patience, we need not be surprised that a poisoned state of the circulation, an absence of all healing power in the ulcerated surfaces of the umbilicus, and uncontrollable hæmorrhage, should speedily shew itself in cases where there is an absence or a malformation of the biliary or cystic ducts, or when there is a failure in the ordinary shrivelling-up of the ductus venosus.

That cold or a vitiated atmosphere has much to do with the production of the slighter forms of jaundice, as West avers, we very much doubt, for we have met with the affection in a great many instances among the children of the upper classes, where there was no want of proper attention or comfort.

In regard to Bouchut's opinion, that all observation goes to disprove the idea that congenital marks or deformities have any origin from impressions made on the mind of mothers during pregnancy, Mr Bird says, "there seems reason to believe, however, in the occasional origin of deformities in the fœtus from vivid external impressions acting through the imagination of the mother;" and he goes on to quote various authors and cases in proof, p. 5. In this notion we would express our most decided disbelief. We have no doubt but that sudden shocks or alarms, such as thunder-storms, fire, the horrors of a siege, disgusting objects, etc., might suddenly deprive a fœtus of life, or that such causes might, in some way or other, check physical growth, and thus at the full time manifest the effect produced, by the birth of an acephalic, or an idiotic, or an epileptic child, or of one deformed in some region or part of the body. But that the sight of a *talipes varus* or *valgus* will occasion a club-foot; or the apparition of a cyclops, an absent eye; or of a harelip, a fissure of the palate, etc., seems to us preposterous nonsense. We have delivered women whose husbands were club-footed, or otherwise deformed, and have had the early and anxious inquiry whispered to us, "is all right?" but have never in these circumstances met with corresponding physical defects; and we have many times also seen the mother's strongest and most adherent presentiments from the sight, during gravidity, of monstrosities, tumours, and the like, unrealized. The natural aversion which mankind — and womankind—have to admit that physical imperfections can originate from constitutional causes, is exemplified in this matter. A mouse leaping from out a press on a pregnant woman, is readily believed by some to have inscribed its mark on her child in the form of a *nævus* or of a mole, yet how many gravid housewives throughout the length and breadth of this land must have met with a similar surprise. But the idea is altogether childlike, and unworthy of being seriously argued. We would as soon credit the explanation of the origin of a hare-lip lately given us by an ingenious boy, who said he was sure the doctor, in digging his little brother out from among the cabbages in the garden, had split his face with the spade! As M. Bouchut truly says, "Il n'est pas une femme grosse qui n'ait eu ses caprices ou un désir non satisfait, et cependant le terme de la grossesse arrive, l'enfant vient au monde sans apporter sur lui la difformité qui devait témoigner du mécompte de sa mère." Deuxième édition, p. 6.

Want of space prevents us from extending these notices farther, and in conclusion we would only remark, that Mr Bird might, with much propriety, have shortened his notes by the omission of some subjects which do not come under the avowed plan of M. Bouchut's work. Bouchut has himself occasionally erred in this respect, but still more so has his annotator. Thus on chorea, p. 172, we would submit that the notice of the two cases alluded to by Bouchut as the only ones he had ever heard of, does not warrant the long account given by Mr Bird, of some cases among grown up children, for there is great reason to believe that these supposed instances given in the text were affections of an epileptic or tetanic nature. Pure chorea, we would confidently assert, is never met with in infants newly born or at the breast. We think that the notice of "foreign bodies in the larynx," p. 285, and of "cynanche parotidea," p. 409, might also have been omitted. In regard to the first, all the instances mentioned occurred to children of two years and upwards. Indeed within the suckling age such accidents must be rare, as everything taken into the mouth is subjected to suction movements in its anterior part, and if not easily reduced to pulp is at once rejected. Then as to the *mumps*, it is an affection quite unknown in infancy, and indeed is rarely met with until the school-going period of childhood. The same may be said of "cynanche tonsillaris," on which there are also copious notes given, p. 410. As a distinct disease it has no existence during infancy; and when met with in childhood it is generally only as a part, or a sequence of scarlatina. By the way, the chapter on scarlatina is one of the most imperfect in Bouchut's work; and it is to be regretted that Mr Bird has not supplied the defect by noticing some of the valuable observations made by our own countrymen on this affection and its consequences; and he is further blameable in not pointing out the accumulated weight of evidence which has been furnished from this quarter also, in regard to the utter worthlessness of belladonna, the much-vaunted homœopathic prophylactic against scarlatina, so injudiciously puffed off by Bouchut.

A Guide to the Practical Study of Diseases of the Eye, etc. By JAMES DIXON, Surgeon to the Royal London Ophthalmic Hospital. Pp. 395.

To those who already possess an acquaintance with eye diseases, the elaborate and learned treatise of Dr Mackenzie leaves little to be desired; but to junior practitioners, and to students more especially, the work is heavy and dry in the extreme. It was, therefore, with a feeling of satisfaction that we took up the little work of Mr Dixon, which professes to be merely "a Guide" to the study of these diseases; nor, although we differ from him on many points, have we been altogether disappointed. Mr Dixon in his preface says,—

"Notwithstanding all the assistance the student may derive from systematic treatises and pictorial illustrations, close personal examination of a large number of patients can alone enable him to recognise those delicate changes which the tissues of the eye present under various morbid conditions. Specially to direct his attention to these changes, and to explain the best methods of observing them for himself, is the primary object of the following pages." Such being his object we shall now see how he has accomplished it.

And here we would congratulate Mr Dixon on his leaving out the barbarous and uncouth terms of Greek and pseudo-Grecian origin, which have of late years been so foisted into ophthalmic works, that the student's jaw is broken in his attempts to pronounce them, and which, so far from simplifying the subject, tend only to render it more confused. In an English work, why, in the name of common sense, should we not use the English language? If Mr Dixon had done nothing more than attempt to get rid of this absurd custom, he would have deserved our thanks.

Mr Dixon's work is divided into sixteen chapters on the examination and diseases of the eye, three chapters on the operations, and a short appendix of cases. We shall not examine all these chapters individually, but merely select a few passages here and there to show how our author has performed his task. In his chapter on the examination of the eye, Mr Dixon's remarks are sensible and judicious. We entirely agree with him in the cautions which he gives as to the use of the ophthalmoscope. This instrument has never been a favourite with us. Many of the diseases which it professes to reveal, are, to the practical ophthalmologist recognizable without its aid; while in the hands of a student, or those not accustomed to its use, most serious and irreparable mischief may be inflicted on the delicate organ of vision. To a hopelessly disorganized eye, little harm can be done; here it may be curious to see what changes have taken place in the retina and vitreous body; but where there is still a possibility of vision being saved or improved, we hold that it is injudicious to irritate the retina by concentrating much light upon it. Mr Dixon thinks that "the chief value of the ophthalmoscope seems to consist in enabling the surgeon to set aside, as positively hopeless, a large number of cases formerly termed 'amaurotic,' or 'nervous,' which were assumed to be still curable, because their real nature could not be demonstrated." P. 10. We much question if it will be found of any real practical utility.

Under the head of Catarrhal Ophthalmia Mr Dixon gives some sensible advice as to the use of nitrate of silver in this affection;

and in one which bears much resemblance to it, the *catarrho-rheumatic;* in the former we have found weak solutions of the nitrate extremely useful, but in the latter they are positively injurious. In the catarrho-rheumatic ophthalmias we have found nothing relieve the patient so much as simple warm water, or warm opiate fomentations.

Purulent ophthalmia of the adult, and gonorrhœal ophthalmia, we consider as one and the same disease, but generated by different causes, and the latter running a more rapid and perhaps more fatal course; we therefore think that Mr Dixon, in a work intended for students, might have described them under the same head. His description of the former is good. With his treatment we agree generally, particularly with regard to the depletory system. Many eyes, we are convinced, have been lost from excessive depletion in this affection; we are glad therefore to find it so strongly condemned by one, who, from his position, must have had many opportunities of witnessing its injurious effects. We cannot agree, however, with our author in his condemnation of Mr Tyrrell's radiating incisions, whether the theory of their *modus operandi* be correct or not, we certainly have seen most marked benefit from their employment in not a few cases.

On the treatment of the purulent ophthalmia of infants, Mr Dixon is very meagre. He merely recommends weak astringent lotions, and takes no notice of the great advantages to be derived from the use of the nitrate of silver in solution. Of astringents we think that the best is alum, or a decoction of oak bark. The matter should be frequently washed away with a bit of soft rag or fine sponge, moistened with one or other of these, and then a drop of nitrate of silver allowed to fall into the eye from a camel's hair brush. We cannot condemn too strongly the employment of a syringe for cleaning away the matter; in the hands of a surgeon it may sometimes be a safe enough instrument, but never in those of a nurse or attendant. Does Mr Dixon never employ any mild ointment to prevent the eyelids from becoming agglutinated during sleep?

That extremely common and troublesome affection, scrofulous ophthalmia, Mr Dixon treats of very shortly. It is curious that he takes no notice of that almost specific for its cure, quinine.

In inflammation of the cornea, Mr Dixon's treatment we highly approve of; certainly no remedy that we have tried seems to possess such a power of clearing that membrane, and causing a shrivelling up of the vessels, as iron, given in some form or other. For our own part we prefer the saccharine carbonate, given either alone or with quinine, or sometimes with a small quantity of the grey powder. General bloodletting in our hands has always proved injurious; but one or two leeches applied occasionally to the temple are often of service, by unloading the congested vessels. Local applications, with the exception of tepid water, generally do harm. Counter-irritation on the temples we also find of much use.

Mr Dixon's description of inflammation of the cornea, attended with suppuration or "abscess," is short, but distinct and intelligible, and his treatment on the whole judicious. We think, however, that in this form of inflammation a small quantity of mercurial may be given with decided benefit, provided salivation be avoided.

Ulceration of the cornea, we think, is passed over too slightly. Anything which affects the transparency of this membrane is of importance. Ulcers of the cornea may be divided into three varieties, the indolent, the healing, and the inflammatory or sloughing ulcer, each easily distinguished from the other by the amount of surrounding haze and vascularity, and each requiring different modes of treatment, or no treatment at all.

In the indolent ulcer, or transparent dimple, stimulants, both local and general, must be employed. In the healing ulcer, little or no treatment is required beyond simple fomentations; we merely require to watch that it does not become either indolent or inflammatory; it is known that "the edge of an ulcer in which the destructive process has ceased, and reparation begun, is always more or less hazy, and at the same time there will be found some vascularity of the sclerotic immediately adjoining that part of the cornea where the ulcer is situated; and occasionally a fine vessel, or a delicate plexus of vessels, may be traced from the vascular portion of the sclerotic to the border of the ulcer itself." P. 83. The inflammatory or sloughing ulcer again, is recognized by its edges being swollen, ragged, and irregular, presenting the appearance of a piece of washed buff-leather, generally a large patch of vessels running up to it, and a great amount of pain and intolerance of light. Such ulcers we find best treated by repeated local depletion, and a small quantity of mercury. All local applications should be avoided.

"When an ulcer has completely perforated the cornea, the aqueous humour of course escapes, the iris falls forward, and a portion of it protrudes through the aperture, forming what is termed *Prolapsus Iridis.* The protruded portion appears as a brownish nodule, surrounded by the greyish or yellowish margin of the ulcer. In some books on ophthalmic surgery, the reader is directed carefully to push back again with a probe such protruded portions of iris; but he is not told how they are to be *kept* back. It must be self-evident that they will slip out again the moment the probe is removed; and therefore, instead of wasting time in such fruitless efforts, the surgeon must endeavour to produce speedy adhesion between the protruded iris and the edge of the corneal ulcer with which it lies in contact. This adhesion will be hastened by suitable tonic and stimulant treatment; and very often further protrusion is checked, and the healing of the ulcer quickened, by very carefully and lightly touching the parts with a finely-pointed stick of nitrate of silver." P. 85. With this we cordially agree, but we think that Mr Dixon commits an error in not applying belladonna for the purpose of retracting the protruded iris; we are in the habit of using it in all cases where the ulcer is situated near the centre of the cornea, but never when it is near the edge, as it then only tends to thicken the iris towards that part where the ulcer is situated. It also acts as a sedative, and relieves the pain.

On the subject of opacities of the cornea our author says,—"If, therefore, after all inflammatory or reparative action in the cornea has ceased, drops or lotions be continued for a certain time, the clearing, which is really due to the ordinary process of nature, will be attributed to the medicated application. *Time*, I believe, is the great clearer of corneal opacities; and the surgeon who is consulted respecting those which follow recent ulcers in children, may comfort the friends with the assurance that as the children grow up, the specks—they can never wholly disappear—will become smaller and less noticeable, provided no fresh inflammation should set in. If, however, the speck is of old date, and its margin abruptly defined, it is useless to attempt its removal." P. 88.

An eye is often lost from the bad treatment of wounds of the cornea. On this point Mr Dixon makes the following observations:—"The treatment of wounds of the cornea must rest on the same principles as guide us in treating wounds of other tissues. Foreign bodies must be removed, and anything that can hinder the perfect adaptation of the cut surfaces; and then absolute rest, and a due performance of the nutritive functions, are the main requisites. It is quite astonishing to see some surgeons, who, in the case of an incised wound of the arm or leg or a compound fracture, would never think of doing more than I have just mentioned, resorting, as soon as an incised wound of the cornea comes under their notice, to bleeding, purging, low diet, and the administration of mercury; while they perhaps overlook the one thing needful—absolute rest of the wounded part." P. 97.

Sclerotic inflammation Mr Dixon dismisses very summarily; we are glad to see, however, that he recognises such an affection, the existence of which, in a simple form, has been denied by Velpeau. In Sclerotitis, blisters, instead of aggravating the pain, we think alleviate it in most instances. Colchicum, when combined with bark and soda, has proved in our hands a valuable remedy.

The minute subdivisions of iritis by the German authors, we think tend only to perplex the student, and are of no practical utility; it is sufficient for treatment, that iritis be divided into the two forms of acute and chronic; these are modified, however, by different causes, as syphilis, gout, rheumatism, and perhaps scrofula. "What we have to do in all inflammations of the iris, is to moderate the flow of blood towards the part, to check the effusion of fibrine, and promote the speedy absorption of that already poured out; and if we succeed in doing this, it matters little whether the fibrine was in front of the iris or behind it; and equally little, I should fancy, whether the patient had been suddenly deprived of the itch." P. 125.

Mr Dixon's description of the symptoms and appearances of iritis is neither so clear nor so minute as we could have wished. He says,—"The appearances common to all cases of iritis are—a red zone in the sclerotic, close to its junction with the cornea, more or less deformity of the pupil, and loss of its normal mobility; a change of colour in the iris; loss of its peculiar fibrous appearance. Symptoms which depend upon the specific character of the inflammation—upon its degree of intensity and duration—upon the susceptibility of the patient, or the extension of inflammation to other tissues of the eye, are deposit of fibrine on the surface of the iris, and in the anterior chamber; the appearance of red vessels in the iris; closure of the pupil, or adhesion of its margin to the capsule of the lens; pain, and impairment of vision; opacity of the cornea; and permanent opacity of the lens or its capsule." P. 127.

He would have done better had he first described acute iritis, then chronic iritis, and lastly, the disease as modified by the causes we have mentioned above. Speaking of rheumatic iritis, he says,—"This inflammation is especially characterized by a tendency to involve the sclerotic and cornea, producing a mottled opacity of the latter which remains after the more violent inflammatory symptoms have subsided: and it is distinguished from that of purely syphilitic origin by being less prone to the excessive effusion of fibrine on the surface of the iris, and into the anterior chamber, which occurs in the latter disease." P. 132. And of the solution of fibrine in syphilitic iritis,—"These masses of fibrine are of the most varied colour, shape, and size. In some cases they are less than pins' heads; in others they occupy a considerable portion of the anterior chamber. They may be yellow, reddish, or reddish-brown, according as they are recent or of some duration, or in proportion to the number of vessels traversing them. They are usually first noticed at the margin of the pupil, and it is only in severe inflammation that similar masses are effused on other parts of the iris." P. 136.

We are delighted to see that Mr Dixon does not advocate general bloodletting in the treatment of iritis. We have long been of opinion that the use of the lancet in this disease, whatever may be its cause, is very seldom requisite. Certainly, in a robust, plethoric patient, we do not hesitate to use it freely, but in civil practice, particularly in towns, there are few individuals who will stand even a moderate loss of blood. We generally find that our object is equally well attained by the application of a cupping-glass or a moderate number of leeches to the temple. "It is on *mercury* that we place our chief reliance for controlling this morbid tendency." "'*Salivation*' *should be carefully avoided;* the gums never being made tender except in the slightest degree; indeed, the best cures of iritis are effected when even that point is not reached." P. 137.

Turpentine, Mr Dixon does not seem to think much of. We have found it a valuable remedy in chronic iritis; and in acute iritis, when given after a small quantity of mercury, and when the inflammation is beginning to subside, it seems to prevent that great tendency to relapse, which is so annoying both to patient and surgeon; it requires, however, to be given for some time, and in tolerably large doses.

Mr Dixon says,—"Invaluable, indispensable as atropine is in our examination of many morbid states of the eye, I do not regard it as of any service in iritis; for, as I stated at the commencement of this section, an inflamed iris loses its power of motion. Atropine, therefore, must be *useless* during the active stage of inflammation. At a later period, when the iris is beginning to recover its motory function, it may, I think, even *do harm;* and in the following way. The hinder surface of the iris, termed 'uvea,' is covered with a layer of pigment-cells. When fibrine is poured out behind the iris (which no doubt happens in all cases of acute inflammation), these pigment-cells become, for a time, firmly united to the capsule of the lens; and if, when the iris is regaining its motory function, a forced dilatation of the pupil be effected by the influence of atropine, some of the pigment may be detached from the posterior surface of the iris, and left adhering to the capsule, forming those brown patches so familiar to us in patients who have suffered from iritis. Only get rid of the fibrine which is glueing the pigment-cells to the capsule of the lens, and the iris is at once effectually liberated." P. 138.

Now, with this statement we entirely disagree. We hold that in all cases of iritis, the great object in view ought to be to prevent a contraction of the pupil, or to dilate it if contracted. Belladonna or atropine possesses this power, and although the pupil will seldom dilate until the inflammation begin to subside, it then does so, often very rapidly. It is much better that a patient should recover with a large pupil, even although there be some "*brown patches*" on the surface of the capsule of the lens, than that the pupil should remain permanently contracted or blocked up with lymph. We deny that those "brown patches" are so common as Mr Dixon would make us believe; we meet with them occasionally, but they are by no means "familiar;" and we think that were Mr Dixon to make more use of belladonna, he would not see them so frequently as he does.

The term "Aquo-Capsulitis," Mr Dixon thinks, "ought to be erased from our ophthalmic vocabulary, as being based on false anatomy," p. 166. He describes the disease hitherto known by that name, under the head of inflammation of iris and cornea together. We are not sure that Mr Dixon is happy in his choice of a name for this disease. We have seen many cases presenting the "peculiar *mottled opacity*" on the inner surface of the cornea, where the iris has been altogether unaffected; certainly if the disease be left entirely to itself, the iris is apt to become secondarily involved; but it by no means follows that it always, or even frequently, does so. He says that the most frequent subjects of this disease "are young persons, more especially delicate children, under twelve years of age," p. 168. In our experience it is most frequently met with in females in whom the catamenial functions are irregular or absent. Mr Dixon's treatment is on the whole judicious.

Diseases of the choroid, retina, and vitreous body, are extremely obscure. Mr Dixon thinks that we do not "in any way advance the science of ophthalmology by assigning a name to a morbid condition, the existence of which cannot be demonstrated." P. 170. He is of opinion, however, that many of them may be revealed by the ophthalmoscope, and that probably one of the most important results of this instrument will be a great restriction in the administration of mercury. It may be, that as we become more habituated to the use of the ophthalmoscope, we may be able to detect what Ruete *says* he has seen and has figured, but as yet it has proved utterly valueless in our hands for the recognition of these diseases when in a curable stage. We more cordially agree with Mr Dixon when he says,—"In fact, when we see what a variety of constitution exists among patients affected either with the more manifest and palpable forms of inflammation, which involve at once both the superficial and deep tissues of the eye, or with the more insidious and concealed forms, exclusively affecting the choroid and retina, it must be evident that every case becomes a study in itself, and that the practitioner must base his treatment, first, on the most careful and precise diagnosis which the existing state of ophthalmic science can afford; and, secondly, on the peculiar constitution and habit of the patient; neither invariably rejecting nor invariably employing bleeding, or mercury, or iodine, or tonics; but selecting just that plan of medicinal and dietetic treatment which the circumstances of the case immediately in hand may seem to indicate." P. 177.

Under the head of affections of the lens and its capsule, Mr Dixon draws attention to the pale yellow colour which the lens acquires in most persons after they have passed their thirtieth year. This we have also frequently remarked, and in diagnosing cases of cataract it requires to be borne in mind. Mr Dixon does not think that the "catoptric test" is of much value in deciding on the presence or absence of incipient cataract. This we agree with; the catoptric test, in our opinion, is only an adjunct to the other means of diagnosis, but it is by no means to be trusted to alone. The only certain way of arriving at the conclusion that a cataract does exist, is to dilate the pupil and condense the light upon the lens with a convex glass of short focus.

Mr Dixon's remarks upon the classification of cataracts, and the situation of the opacity, deserve a careful attention, and evince an intimate practical acquaintance with the subject. We are by no means, however, prepared to admit all that he asserts.

In chapter XII. Mr Dixon groups together those diseases which involve all the tissues of the eyeball, viz., glaucomia, scrofulous, encephaloid, and melanotic deposit, which, he says, "have obviously no histological connexion with each other; but they all present in common certain objective phenomena—such as, for instance, a morbid reflection from the bottom of the vitreous chamber, and, at a certain stage, opacity of the lens; ultimately they affect, in one way or other, all the tissues of which the eyeball is composed." P. 224.

With this arrangement we are not satisfied; we think Mr Dixon would have done better had he described glaucoma by itself, and probably the scrofulous, but certainly the encephaloid and melanotic deposits, under the head of malignant diseases of the eyeball. His description, however, of the diseases is characteristic, and his treatment sensible, particularly with regard to extirpation of the eyeball in the malignant diseases. In glaucoma we have sometimes been we thought successful in checking the farther progress of the disease by a prolonged course of the iodide of potassium; but we confess, that in the majority of cases, all treatment has proved unavailing. The mercurial treatment of encephaloid disease has always proved useless in our hands.

Mr Dixon places muscæ volitantes, long and short sight, and colour-blindness, under the head of diseases of uncertain seat; we are of opinion with him, that Tyrrell's theory of the seat of floating muscæ is erroneous, and that Dr Mackenzie's more nearly approaches the truth; but we think that long and short sight, and colour-blindness, would more appropriately have been grouped under the head of optical diseases of the eye. Of long and short sight the author's description is very short and unsatisfactory. A student requires something more than to be merely told that short sight does not depend upon an excessive convexity of the cornea, and that "a careful examination of a few short-sighted persons will suffice to disprove this." P. 259.

The affections of the lachrymal apparatus Mr Dixon dismisses very summarily; even in an elementary work we think he might have given a little more information, especially as disorders of these organs are a source of great annoyance to the patient, and are of frequent occurrence. In chronic thickening of the lining membrane of the sac, we have also found much benefit from the frequent application of a small blister over the part, or what we prefer, painting it over frequently with a saturated solution of iodine; styles we never introduce till everything else has failed. In the early stage of acute inflammation of the sac, we have found a single leech applied over the swelling of great service.

On diseases of the eyelids Mr Dixon says, "The variety of tissues entering into the formation of the eyelids, of course subjects them to a great variety of diseases; but inasmuch as the tissues for the most part resemble those found in other parts of the body, and do not present the peculiarities which distinguish the structures of the eyeball itself, there is no occasion for treating diseases of the eyelids with that minuteness of description which is absolutely necessary when treating of morbid changes in the cornea, the iris, and the lens." P. 227.

Acting on this he gives a very short but practical sketch of their chief affections, and the remedies and operations which are required for their cure, referring for more particulars as to the latter to the *Practical Treatises* of *Mackenzie* and *Walton.* To the student, to whom access to these works is not always easy, we think the author would have conferred a benefit had he given a few diagrammatic illustrations of the principal operations.

Protrusion of the eyeball, from various causes, abscess in the orbit, paralysis of the nerves supplying the muscles of the globe, and strabismus, constitute the contents of the next chapter. Mr Dixon's description of the various affections is short but intelligible. To the student, however, who wishes to acquire a thorough knowledge of these diseases, we would recommend a careful study of the more voluminous work of Dr Mackenzie.

With regard to the operations, Mr Dixon says, "I have endeavoured to confine myself to such a general description as may render the principles upon which they are founded intelligible to the student, rather than to give him minute directions for every manipulation which their accurate performance demands," p. 307, and refers for more particulars to Dr Mackenzie's Treatise. With this part of the author's performance we are less pleased than with the preceding. Mr Dixon seems to have become tired of his subject, and to have hurried it over in as short a space as possible; he has, therefore, in our opinion, not succeeded in rendering the various steps of the different operations at all clear to the student. We trust that, in a future edition, Mr Dixon will rectify this, and give at the same time some illustrative diagrams, without which descriptions of operations are, we think, of little use to those for whom this work professes to have been written. We agree, however, most cordially with all that Mr Dixon says regarding the after treatment of patients who have undergone the operation of extraction. Many eyes, we think, are lost after this operation, from an impertinent interference on the part of the surgeon with the healing powers of nature, and which would not be tolerated by the rules of good surgery in any other part of the body.

In conclusion, we have much pleasure in recommending Mr Dixon's book as a sound "Guide" to the study of Eye Diseases; with it, and the great book of nature before him, the student may soon acquire such a knowledge of the subject as may enable him to turn, with both pleasure and profit, for farther information on points on which Mr Dixon is either silent or defective to some of our more voluminous and standard works.

Atlas of Cutaneous Diseases. By J. MOORE NELIGAN, M.D., etc. etc.

THE author says "that his chief object in the publication of this book of plates of cutaneous eruptions, is to supply the student and junior practitioner with a work moderate in size and cheap in price, which can be readily referred to in the study of what is admittedly an obscure class of diseases." Dr Neligan deserves our best thanks for this attempt to supply a want which has been long felt. For a small sum he here presents us with an Atlas containing some ninety plates of the more common and rarer forms of affections of the skin, and for the benefit of those who possess his useful Manual, he supplies with each illustration a reference to the chapter of that work, where the disease receives special mention. Great care has evidently been taken to procure proper subjects of illustration for the artist and the daguerrotype, which has been employed in several of the plates "to secure correctness in the design," but the peculiar method of chromo-lithography used in the transference of the design to the paper, fails in several instances to give a correct representation of the disease. Better workmanship of the kind, we feel assured, could not be procured, but an Atlas of Cutaneous Diseases, sufficiently accurate to assist the practitioner in the diagnosis of these affections, cannot, we are convinced, be produced at a low rate. Great fidelity in the design demands corresponding care and finish from the artist who transfers it to wood, stone, or metal. In this matter Dr Neligan has not had justice done him, and we regret that we cannot compliment him (as in all his other works) on having supplied a want in our medical literature.

Observations on the Life, Disease, and Death of John Hunter, in elucidation of the Nature and Treatment of Gout, and Angina Pectoris. (Hunterian Oration), By JOSEPH RIDGE, M.D., F.R.C.P., etc. London 1855. 8vo. pp. 47.

THOSE who are fond of speculative pathology, and who do not object to its being a little vague and far-fetched, will find material for thought in this pamphlet. Dr Ridge is full of suggestions, and builds upon the plain and instructive narrative of Hunter's case fully more of theoretical inference than we think it calculated to bear; nor is it very easy to seize his general drift, amid the crowd of quotations and desultory remarks, forming the bulk of this oration, which must be considered more as a *pièce d'occasion* than as a deliberate essay on the diseases named in the title page. The narrative portions of the paper, though published elsewhere, may not be accessible to every one: and as they are of unquestionable interest, and of permanent value, perhaps some of our readers may think it worth while to possess Dr Ridge's pamphlet on this account, apart from the pathology, which we are content to leave in their hands without further remark, and which is in truth of rather too flimsy a character to admit of criticism.

SURGERY OF THE WAR IN CHINA.

We have been favoured with a perusal of the Seventh Annual Report of the Chinese Hospital at Shanghae, from January 1st to December 31, 1853.

It is one of unusual interest: from the occupation of the city by the rebels, and the successive defeats of the imperialist army, the applicants for advice at the hospital were very numerous, amounting to 11,028, entailing, of course, on Mr Lockhart, the medical officer, a greatly increased amount of labour and anxiety. Among the items, which strike the eye in running over the classified list of admissions, we find—gunshot injuries, 324; amputations, 19; contusions, 308, of which 10 were the result of spent-balls, and one is noted as "dislocation of shoulder on thorax from spent-ball." Disease of bones of foot in girls, 12—no case is recorded among the males; caries of superior maxilla, 6. The diseases of the country and common ailments afford, however, by far the largest number of patients; so many as 3000 being returned as affected with diseases of the eyes. Cases of psora are estimated at 480; psoriasis, 280; porrigo, 98; lepra, 164; elephantiasis, 16; leprosy, 20. 330 opium-smokers applied for advice and treatment. In 10 cases that drug was taken with suicidal intent, and in four of these death was the result. The following extracts illustrate the vicissitudes of a surgeon's life in Shanghae, and are interesting memorials of surgical experience:—

A RIOT IN A CHINESE JAIL.

"The year has been one of much vicissitude; in February last, during the panic caused by the supposition that the Thae-ping army was advancing on Shanghae, and that the principles of its commanders were inimical to foreigners, the hospital was almost deserted; but when confidence was restored, the patients came again as usual; and when the city was taken possession of by the members of the Triad society, the attendance of patients again fell off; but for the last three months, not only has the attendance of out-patients been large, but the in-patients have been very numerous, crowding both the wards and the large hall with the sick and their nurses.

"The dispensary in the city was kept open till July, when it was closed for the summer. It has been the usual practice to do this, as it is found to be impossible to attend to the city dispensary during the months of July and August, on account of the heat. Since last summer, however, it has not been opened at all (except for the purpose of attending occasionally to one or two patients), on account of the unsettled state of the city. Since the city has been in a state of siege, admission to it has been frequently very uncertain, and at all times attended with considerable difficulty.

"In the beginning of the summer, attention was called by some of the natives in the city to the fact that there were a number of men who had been severely wounded in the Che-heen's (or magistrate's) jail. A visit was immediately paid to the place, when it was ascertained, that, in a yard which was one of the departments of the inner prison, about fifty pirates, all Canton and Fokien men, had been confined; but that, on the morning of the day when it was visited, they had tried to break out of prison, and were very riotous, on account of some additional hardship that the officers intended to inflict on them, and also because some of the party were to be separated from the rest. The soldiers of the garrison had been called out, who fired several rounds of musketry into the yard and the prisoners' cells, till the rioters were rendered quiet, or at least disabled, when the soldiers rushed in and beat them with wooden poles for some time. After this, the whole of the prisoners were loaded with extra manacles, and those who had not been severely wounded were forthwith submitted to the bastinado, till they could hardly walk. The scene presented in the yard and the cells around it, was one of perhaps common occurrence in Chinese prisons, but, it is to be hoped, not often seen elsewhere. Four men were killed, and lay at the door in a heap, just as they had been thrown down. One man had compound fracture of the thigh; three had compound fracture of the tibia, the result of gun-shot; others had fractures of the leg and arm. On inquiring from these what had caused their injuries, they said they were occasioned by blows from the poles, with which they were attacked by the soldiers after the firing had ceased; several had received severe sword-cuts, and others had bullet-wounds in various parts of the body and limbs. About twenty were wounded in the affray; the remainder had the skin of their backs, thighs, and legs, beaten off by the bastinado; and the moans and cries that proceeded from all parts of the yard were heart-rending. The men that had the compound fractures, had not only chains on their hands, and bars of wood chained to their feet, but also on one leg a band or oval hoop of iron, placed over the knee, while the leg was flexed on the thigh, and to confine this in its place a rod of iron was thrust through the middle of the hoop at the ham, and locked so that it could not be removed; the knee was thus kept forcibly bent, causing much agony to the wretched prisoners. It was then late in the afternoon, and almost dark; all that could be done, however, was effected as speedily as possible—bullets cut out, wounds dressed, fractured limbs bound up and put in position, as far as time and circumstances would allow; and the next day bandages, splints, ointment, and whatever else was wanted, were taken and applied to the sufferers. Attempts were made, by application to the officers, to induce them to take off the hoops and chains from the fractured limbs, but the application was refused; and at a later period, when the request was more urgently pressed, the officers said that they would not do it, and that they hoped the men would all die, and the sooner the better; also that they wished no help or relief to be afforded to them. However, the pirates themselves were very thankful for the relief they experienced, and they assisted and nursed one another very kindly. The way in which orders were given, and relief administered in the cells, was a curious process: one of the occupants was an intelligent young man, and spoke English very well; he had been beaten on the thighs, and had logs of wood chained to his legs, so that he could not walk. This man was put on the back of another, who had chains only on his hands, and was thus carried about from cell to cell to receive instructions, and give directions as to what was to be done in the intervals of the visits. The bodies of the four dead men remained in an outer cell for more than a week, but a mass of ice was thrown upon them to keep them from putrefaction to some extent, until the affair had been examined into, and reported to the superior officers. One or two more died, and in process of time the rest recovered of their wounds, after rather a large consumption of plasters and bandages. When the city was afterwards taken by the Triads, the young man above alluded to was found to be in command of a detachment of men, and in charge of the Little East Gate; and being dressed up in velvet and satin, presented a very different appearance from what he had done when loaded with chains and covered with rags in the prison."

COMPOUND FRACTURES.

"One of the cases of compound fracture of the tibia, was that of a man who was working as a painter on ship-board at Woo-sung, when a musket accidentally fell out of the rack, exploded, and shot away a portion of the tibia, with the attached soft parts; he refused to have the leg amputated, and after excessive suppuration, the wound is gradually filling up, but it will be some time before it is healed, and the foot will even then be quite useless; it would have been much better for him, in every way, to have had the limb amputated at once.

"The case of compound fracture of the os calcis was of a woman, who, being attacked by an Imperial soldier, tried to escape from him, and in the struggle fell through the floor of her house from the upper room, and came to the ground on the fore part or point of her foot, which so violently and suddenly bent on the leg, that, owing to the artificial constriction of the feet in Chinese women, the skin above the heel was rent across for two inches, and the tendo Achillis tore off a portion of the upper and back part of the os calcis, which protruded at the wound. The piece of bone was replaced, by tilting the skin over it, the lips of the wound were brought together by adhesive plaster, and a splint applied. The case is doing well, but is still under treatment."

"The compound fracture of the patella was caused by a cannon ball passing the front of the knee transversely, and destroying the centre of the patella, by which means the joint was opened; amputation was desirable, but the Chinese do not recognise the necessity of resorting to so severe a measure for so apparently trivial an injury. The man was placed in bed, a long splint applied at the back of the thigh and leg, and water dressings used constantly over the knee; but the result, which was feared at first, speedily supervened, namely great inflammation of the joint; this was followed by excessive suppuration at the back of the knee; depending openings were made, but the man's strength speedily failed, and he sank and died.

"A cannon shot passing a man's leg in the same way, produced comminuted fracture of the tibia and fibula; one of the pieces of bone pierced the skin; another had probably opened the posterior tibial artery, for there was very great hæmorrhage, and amputation ought to have been resorted to; but, as in the case above alluded to, the patient would not submit to the operation; the hæmorrhage ceased, but the limb was distended with blood, and the man died from the excessive suppuration, large portions of the tibia coming away during the process. Some of the Chinese bear operations, and lingering complaints or injuries which require a long time to repair, very well, and avoid many of the effects commonly produced by inflammatory processes, as their constitutions do not readily take on inflammatory action; but, as a class of people, they do not generally bear well the long-continued waste and drag on the strength, caused by the excessive suppuration frequently consequent on severe injuries.

"One of the cases of the destruction of the calf of the legs, was in a soldier, who had all the flesh from the lower and back part of the leg to the heel torn off, and great hæmorrhage had ensued; the wound was dressed and stimulants given, but the man never recovered the shock of the injury, and died on the next day. In the other case, the flesh from the knee to the heel was shot off; this man did well, the immense wound has been almost closed, and the man can limp about the ward.

"The case of destruction of the os calcis and astragalus was caused by a two-pound shot passing through the bones, the remainder of the foot being perfect; an attempt was made to save the limb, but the sloughing and suppuration were so great, that it was found desirable to amputate it; before this could be done, however, he died suddenly one night; the immediate cause of death could not be ascertained, but it was supposed that the patient's constitution might have been worn out by the suppuration, though his appearance did not indicate this, and his death was, therefore, quite unexpected."

GUN-SHOT WOUNDS AND THE CHANCES OF WAR.

"A woman was shot in her house, about twenty yards from the hospital gate, while she was in bed nursing her infant; the ball took off the side of her head and face, and she died instantly. A man was also killed in the same house a few days afterwards, by a spent twelve-pound ball striking him on the chest, and bursting in the breast-bone and several of the ribs.

"The woman whose leg was amputated, was shot in her cottage, into which some soldiers went to hide themselves, during one of the attacks on the city; the Triads seeing them, fired at them, and hit the woman with a two-pound ball, which destroyed the leg just above the ankle. Her leg was amputated below the knee, and she did well in every respect.

"The case of the amputation of both thighs terminated fatally, two hours after the operation; there was a question as to the expediency of the proceeding, but there was so much hæmorrhage from the wounds, that the man would very soon have bled to death; and a hope was cherished of saving his life by amputation, which, however, was not realized. This man, with a comrade, was hiding himself behind a grave-stone, but their knees projected beyond the stone, and a cannon ball passing by, took off the four knees. One man died immediately, the other was the patient.

"A few days ago, a tailor, who lived at the bridge near the hospital, went to the door of his house during one of the skirmishes, to call a child out of the road, lest it should be injured, and a six-pound shot struck him between the knees, destroying both legs; he was brought to the hospital, and advised to have the limbs amputated at once, but his wife would not consent, as she said, 'he could not work, if he had no legs;' the hæmorrhage was considerable, and amputation was again recommended, but consent was not obtained for some hours, when, finding that the man was suffering very much, his friends desired that the operation might be performed; it was then, however, too late, as the man was sinking, and died eight hours after the receipt of the injury."

OPIUM EATERS AMONG THE WOUNDED.

"The unfavourable case of amputation above the elbow, and the three fatal cases of amputation above the knee, occurred in men from the Imperial junks; they were opium smokers, and labouring under much shock of the nervous system from the time of admission, they could not bear the drain on the strength, caused by the process of suppuration and healing; the stumps did well enough, but the men gradually sunk and died; they were allowed to have the opium-pipe when they chose, but their general health had already been much impaired, and they had not vital energy enough left to withstand the ill effects of the shock, that had been caused by the injury in the first place; nor to keep up efficiently the effort of repair after the operation."

CHLOROFORM.

"Chloroform was used in all the operations, with only one exception, and always with the most favourable result, the patients remaining asleep till the termination of the operation, and some of them till they were placed on their beds and made comfortable. They knew that some medicine was used to prevent the pain being felt, and constantly asked for the ma yŏ to be given them, or for the towel (charged with chloroform) to be placed over the mouth, that they might breathe the medicine which would set them to sleep, while the operation was being performed; they frequently also asked for it when suffering from severe pain."

DISEASE OF THE FOOT IN CHINESE LADIES.

"Several cases of diseases of the bones of the ankle in girls have presented themselves, being the result of the mode of binding the feet, common in China; this has been remarked upon in previous reports, and it may here be added, that, considering the vast number of females who have the feet bound up in early life, and whose feet are then distorted, the amount of actual disease of the bones is small; the ankle is generally tender, and much walking soon causes the foot to swell, and be very painful, and this chiefly when the feet have been carelessly bound in infancy. To produce the diminution of the foot, the tarsus or instep is bent on itself, the os calcis or heel-bone thrown out of the horizontal position, and what ought to be the posterior surface, brought to the ground, so that the ankle is, as it were, forced higher up than it ought to be, producing, in fact, artificial Talipes Calcaneus; then the four smaller toes are pressed down under the instep, and checked in their growth, till, at adult age, all that has to go into the shoe, is the end of the os calcis, and the whole of the great toe. In a healthy constitution, this constriction of the foot may be carried on without any very serious consequences; but, in scrofulous constitutions, the navicular bone, and the cuneiform bone supporting the great toe, are very liable, from the constant pressure and irritation to which they are exposed, to become diseased; and many cases have been seen where caries, softening, and even death of the bone have taken place, accompanied with much suppuration and great consequent suffering. Chinese women have naturally very small hands and feet, but this practice of binding the feet, utterly destroys all symmetry according to European ideas, and the limping uncertain gait of the women, is, to a foreigner, distressing to see. Few of the Chinese women can walk far, and they always appear to feel pain when they try to walk quickly, or on uneven ground."

Part Third.

PERISCOPE.

FORENSIC MEDICINE.

ON THE POISONOUS PROPERTIES ACQUIRED BY BRINE.

At a meeting of the Imperial Academy of Medicine, May 22, 1855, M. Reynal of the veterinary school at Alfort, read a most interesting paper, in which he communicated the results of his investigations and experiments on this subject. Our limits prevent us from giving in detail these researches, but they are to the effect that brine, in which pork or other animal substances have been pickled or salted, acquires, in course of time, poisonous qualities, for which it is difficult to account. A solution of salt in the same proportion as that ordinarily used in the preparation of brine—ten per cent.—does not seem to occasion the symptoms arising from the exhibition of the poisonous compound referred to; nor does the fatty acid, alleged by the German chemists to be found in this substance, after its employment in the preparation of animal food, appear to explain its effects in anything like a satisfactory manner, since this last principle is discovered in the fluid collected from the *surface* of brine, which has been allowed to stand for some time, but which superficial liquor was nevertheless found, on experiment, not to be more poisonous in its effects than that obtained from any greater depth.

However, although its nature is thus involved in considerable obscurity, the existence of a poisonous principle in the saline solution which has been employed for the maceration of animal tissues in the process of "pickling," is clearly demonstrated in the experiments of M. Reynal; and we subjoin the following conclusions, as embodying the substance of his observations:—

1*st*, Brine, two or three months after its preparation, contracts poisonous properties.

2*d*, In a dose of two litres given to the horse; half a litre to the pig; and from 1 to two decilitres to dogs, its poisonous effects were produced.

3*d*, In much smaller quantities, it excited vomiting in dogs and pigs.

4*th*, The use of this substance, mixed with food, for any length of time, even although in small quantity, may produce death.

The poison appears to act in a two-fold manner; as a local irritant, exciting violent intestinal congestion and inflammation, and as exercising a general influence on the economy, increasing the secretion of the skin and kidneys, and exerting a direct effect on the nervous system, giving rise to trembling, convulsions, loss of sensation, etc.

The treatment indicated by these circumstances, M. Reynal considers to be:—

1*st*, General bloodletting for the relief of the venous system.

2*d*, The exhibition of diluents, such as decoction of linseed, the diuretic action of which may be increased by the addition of ten or fifteen grains of nitrate of potass.

3*d*, Acid drinks occasionally given.

4*th*, Cold applications to the forehead.

5*th*, Sinapisms applied on different parts of the surface of the body.

These means, employed experimentally on animals, were found to be effective remedies in such cases.—(*L'Union Med.*, June 2, 1855).

ON THE DETECTION OF ALCOHOL IN MEDICO-LEGAL INVESTIGATIONS.

Hitherto we have had no convenient and easy method of determining the presence of alcohol in small quantities of fluid. Lately, however, Dr Bucheim, Professor at Dorpat, appointed one of his pupils, Dr Strauch, to make, for his inaugural dissertation, researches on this subject; the results of these investigations, made under his own superintendence, Dr Bucheim has published.

It is known that alcohol, treated with chromic acid, is converted into aldehyde, acetic acid, etc., and that the chromic acid is reduced to an oxide. Chromic acid being of a purple, and the oxide of a green colour, there results upon decomposition a very appreciable difference of appearance. The experiment succeeds better in the presence of concentrated sulphuric acid; the best way, then, is to prepare the chromic acid itself, by pouring ten drops of concentrated sulphuric acid upon three or four grains of acid chromate of potash, the fluid becoming of a yellowish red; if one drop of alcohol be now added, the colour is changed to a deep green.

This reaction, however, is not an infallible test for the presence of alcohol, as it also takes place with other substances. On this account, the author indicates another more certain method, by the employment of platinum powder (*noir de platine*). Alcohol in contact with platinum is speedily converted into acetic acid, the presence of which is easily established by means of test paper. The following is the procedure recommended. If the matters to be examined have an acid reaction, it is to be neutralised by a solution of potass, previously to their being introduced into a retort, which is then to be placed in a water-bath. Into the neck of the retort is introduced a small vessel of platinum, silver or glass, containing the platinum powder, and two slips of test paper, moistened with distilled water. On the application of heat, if the substance contain alcohol, that part of the test paper, in contact with the platinum, becomes reddened, while the rest remains blue, showing that the acid does not arise, directly, from the matters contained in the retort, but is produced by the decomposition, which takes place in contact with the platinum. If the paper is not reddened, it is, in that case, certain that the matters examined, do not contain alcohol. Having described his method in all its details, the author enumerates several observations made upon animals, from which it appears that the process he recommends, is capable of detecting the smallest quantities of alcohol, not only in the fluids of the body, but also in the brain, the liver, the lungs, the spleen, and the kidneys.—(*Deutsche Zeitschrift fur die Staats Arzneikunde*, 1854; and *Gaz. Méd.*, May 19, 1855).

DEPOSIT OF LEAD UPON ULCERS OF INTESTINES.

At a recent meeting of the Medical Society of Amsterdam, Dr Gildemeester showed the large intestine of a female, who had died through exhaustion from chronic diarrhœa. After a variety of remedies had been employed without benefit, the acetate of lead was exhibited on the day preceding her death; six grains being taken within the twenty-four hours. The mucous membrane of the large intestines, from the cœcum downwards, was found swollen, of an irregular surface, pale, and covered with superficial ulcerations, which did not penetrate to the muscular coat, and were chiefly observed in the direction of the bands of the colon. The surface of the ulcers themselves, as well as their immediate circuit, presented, in striking contrast with the pale colour of the rest of the mucous membrane, a blackish tint, the seat of which was evidently in the mucous tissues, which had thus assumed a mottled aspect. As in these black spots, no blood-pigment could be detected under the microscope, the suspicion arose that they might be possibly the results of the small portion of lead which had been exhibited, and that they were constituted by sulphuret of lead. Dr A. Heynsius had subjected these portions, as well as the parts remaining untainted in their immediate contiguity, to a chemical analysis, by means of which the presence of lead was readily detected, and distinctly characterised by the usual tests. The contiguous parts, examined by the same process, showed also the presence of lead, by a faint reaction, but in greatly reduced proportion. It is thus considered by Dr Gildemeester, that we are justified in believing that the dark colour of the gut was here produced by the lead exhibited as a remedy; and that a local effect of the latter upon the lower portion of the intestines, after its introduction into the stomach, is no illusion in therapeutics.—*Nederlandsch Weekblad voor Geneeskundigen:* Vijfde Jaargang, p. 139, Amsterdam, 1855.

EFFECTS OF OLD AGE, NOT INSANITY.

A petition was presented by Mr James Toplis of High Street, Whitechapel, tobacco manufacturer; Richard Toplis of Smithfield Bars, oil and colour man; Benjamin Fleet of East Street, Walworth, soda-water manufacturer; Thomas Pagett of Brompton Road, music-seller; and John Cayley of Smithfield Bars, chemist and druggist (the two former sons, and the three latter sons-in-law, of Mr Edward Toplis of Trafalgar Place East, Hackney Road), praying a reference to one of the masters in Lunacy to inquire whether the last mentioned gentleman is of unsound mind. The allegations in the petition and affidavits mainly were that Mr Toplis was of very weak mind, occasioned by a former course of intoxication; that his wife, to whom he had been married fifty years, exercised great control over him; that the savings out of his income had been invested in the joint names of the husband and wife, with a view to her obtaining the full dominion over the stocks if she survived; that Mr Robert Jeffs, surgeon, of No. 1, Finsbury Place; Mr George West, surgeon, of No. 2, Hackney Road Crescent; Mr John Chambers, of No. 3, Trafalgar Place, Hackney Road; and Mr H. C. Langley, surgeon, of Suffolk Place, Hackney Road, made a certificate, dated 6th of December 1848, in the following words:—"We certify that Mr Edward Toplis, of, etc., is unfit to manage his pecuniary matters. His memory is so impaired that we consider him quite unfit to attend to any business; that the manner in which Mr Toplis was kept was wretched and shabby as to attire; that he was attended by a woman taken out of a workhouse; and that in all respects he was of a totally imbecile condition of mind." One of the affidavits was that of a barber, one Mr John

Douglas, of No. 2, Birdcage Walk, Hackney Road, who gave it as his opinion "that his mind is extremely feeble; in fact, that he is perfectly childish," and "he is, in my firm judgment, opinion, and belief, in a state of dotage, or second childhood, utterly unfit to manage his affairs, and liable to be imposed upon by any designing person." The reports of Drs Forbes Winslow and Copland, as well as that of Dr Southey, were before the court, the latter of which is quoted in the judgment of one of their lordships.

Mr Malins and Mr J. H. Palmer supported the petition; Mr Glasse and Mr Bagshawe, jun., appeared for the alleged lunatic, but were not called upon.

Lord Justice Knight Bruce said that the report made to the Court by Dr Southey, in accordance with a wish for that purpose which had been expressed by their lordships, respecting the state of mind of Mr Toplis, was in the following words :—

"1, Harley Street, July 30th.

"My Lords,—In obedience to your Lordships' order, I have visited Mr Edward Toplis three times at his residence, Trafalgar Place, Hackney Road, and read all the affidavits in the case. Mr Toplis is upwards of seventy years of age, and in fair bodily health. He lives with his wife in one of his own houses, which is small, but well furnished and comfortable. He expresses himself well satisfied with his present condition, and much attached to his wife, with whom he says he has lived for fifty years in great harmony. He has probably been always more or less under her influence, as she seems to be a clever managing woman. In my different interviews with him I endeavoured to ascertain from himself what was the amount of his property, but he could not tell me its extent, nor the income he derived from it, though he knew that he had saved money every year. He gave me the names of the places in which his house property is situated, the rents of which he continues to collect. He said that such property, although attended with some trouble and some risk, gave, upon the average, from 10 to 15 per cent. He receives his own dividends. I gave him a short sum to add up, which he did quickly and correctly. His memory is very deficient. He could not tell me, without considerable difficulty, how many children he had. He has the newspapers read to him every day by his wife, but cannot recollect where the war is now carried on; nor, at my first interview, did he know the name of our present Sovereign. On my next visit, he was better informed. I asked him concerning his will, and he told me that he had made one, in which he had left his wife the whole of his property for her life, and at her death it was to be equally divided amongst his children, share and share alike. He said he would not sign any paper without first reading it, nor alter the disposal of his property. On the subject of religion he said that he went to church regularly, and hoped to go to Heaven through the mediation of Jesus Christ. With a memory so deficient, it can hardly be said that Mr Toplis is of perfectly sound mind. His other faculties seem little impaired. I could discover no delusion under which he laboured. He is not likely to harm himself or others, or to make away with his property; and, so far, does not seem to require the protection of the Court of Chancery. He is obviously most kindly treated by his wife.—I have the honour to be my Lords, your Lordships' faithful servant, H. H. Southey.

"To the Right Hon. the Lords Justices."

His lordship then proceeded to say, that, independently of the weight due to the learning and experience of Dr Southey, the evidence in the case confirmed him (the Lord Justice) in the belief that it was a correct and accurate report of the state of Mr Toplis' mind, with one exception, or rather qualification, which was rather a question of expression. With the expression "of perfectly sound mind," his lordship, in one sense, might be disposed to concur; but there was a technical meaning of the words in which he should be disposed to dissent from their use. Mr Toplis' powers of recollection were impaired and defective; but this, at advanced periods of life, and also at periods not advanced, was a common defect. A man might have a bad memory, but be a competent and efficient man, and no man would venture to suggest that a person could not discharge the business of life because he had a bad memory. The memory, indeed, might be so deficient as to bring a man within the technical description of unsound mind, but it could not be suggested that that was the case with Mr Toplis. He appeared to recollect the events of his early life with readiness and freshness, and the more recent the event was the sooner it faded from his memory; but, bad as his memory might be, he had more than sufficient mind within the meaning material for all present purpose to say that he was perfectly well able to manage himself and his affairs. If the Court were to send the case to a jury, it would be sending a matter to be investigated on which a jury could not find a verdict in favour of the applicants without an imputation on their understanding of the most serious description. This conclusion might be to be regretted, if it appeared that the person or property of this gentleman required protection, for there were many cases in which a Commission of Lunacy, or any proceeding analogous to it, could not be maintained against a man whose person and property were in danger from extravagance, intemperance and folly. The law of this country did not at present provide a remedy for such cases, as the Roman Law did. He (the Lord Justice) was of opinion that neither the person nor the property of Mr Toplis was in danger, and that the present petition was without justification, without apology, and without excuse, and he believed it to be the production of avarice, jealousy, and acrimony, and one which ought to be dealt with accordingly by dismissing it with costs.

Lord Justice Turner observed that it was difficult to prevent the mind from being diverted, and the feelings from being excited, when it was seen how far parties would go when acting under an endeavour to obtain possession of property. He would separate the two facts of the case: the one, the question whether the commission ought to be directed; the other, the conduct of the parties. With regard to the first, it stood upon the evidence of the affidavits of Dr Winslow and Dr Copland, and his Lordship said he had never seen any more precise or satisfactory evidence than that of Dr Copland; and both those eminent medical gentlemen concurred in stating that Mr Toplis was of sound mind. It appeared upon the evidence that Mr Toplis collected his rents, made entries in his books, went to his broker to make purchases, and on the spot corrected any errors of calculation made by his wife. Those facts of direct and positive proof of sanity were met by affidavits that he was in his dotage and second childhood, but no credit could be given to them; and in many instances they related to periods of the years 1845 and 1848—periods of more than seven years back. On such evidence it was impossible that any jury could arrive at any other conclusion than that he was of sound mind, excepting a jury who were themselves fit subjects of a charge of lunacy. It was said that Mr Toplis was under the influence of his wife; but if influences of that nature were sufficient causes for a commission, no man could be safe. It was said he had an impaired memory, and no doubt he had; but it was in the experience of every one at all acquainted with aged persons, that recent events passed quickly from their minds, while they recollected vividly and freshly what had taken place fifty, seventy, or even eighty years back. There was in this gentleman a defect of memory; but the question was, did this so incapacitate him as to make his mind unsound, and, looking at the evidence, there could be no reasonable doubt that it did not. His lordship then said that the conduct of the parties could not be so easily looked over, and proceeded to read long extracts from a sort of family journal, in which the proceedings of their conclave were noted, and various matters relating to Mr Toplis, his mind and acts, and the disposition from time to time of his property, were carefully noted; and observed that he could not find words to describe the disgust with which he had read them, one entry relating to an intention of taking certain steps in relation to his property, they being the children of both Mr and Mrs Toplis (and acting with a view to their own interest), upon which entry they founded their proceedings in this court; and his Lordship concluded by agreeing that the petition must clearly be dismissed with costs, the whole conduct of parties and solicitor for the applicants filling with him indescribable disgust. —*The Times*, Aug. 4th.

CAPITAL PUNISHMENT (SCOTLAND).

The following is a return showing for what crimes capital punishment is still retained by the law of Scotland, having been abolished for similar crimes by the law of England, moved for by Mr Ewart :—1. high treason ; 2. murder ; 3. contravention of stat. 10 Geo. IV., c. 38, "for the more effectual punishment of attempts to murder ;" 4. Hamesucken ; 5. rape, incest ; 6. notour adultery ; 7. sodomy ; 8. bestiality ; 9. forgeries, which were capital previous to stat. 2 and 3 Will IV., c. 123 ; 10. robbery ; 11. piracy ; 12. stouthrief ; 13. furtum grave ; 14. horse-stealing ; 15. cattle-stealing ; 16. sheep-stealing, when more than one sheep is stolen ; 17. theft by a person who is habit and repute a common thief ; 18. theft by a person who has been repeatedly convicted of theft ; 19. theft by housebreaking ; 20. theft by opening lockfast places ; 21. plagium ; 22. wilful fire-raising ; 23. contravention of stat. 29 Geo. III., c. 46, "for preventing the wilfully burning and destroying ships, and the wilfully and maliciously destroying any woollen, silk, linen, or cotton goods, or any implements prepared for or used in the manufacture thereof ;" 24. the high crime and offence under the stat. 7 Will. IV. and 1 Vict. c. 36 ; 25. contravention of stat. 1661, c. 20, against cursing and beating of parents. Although the above offences are capital by law, the public prosecutor has the power of restricting the libel, after which capital sentence is not competent, and this course is followed excepting in cases of murder and high treason.

CORONER'S INQUESTS IN ENGLAND AND WALES IN THE YEARS 1851, 1852, AND 1853, AND THE EDUCATION OF JURORS.

In 132 counties and boroughs of England and Wales, there were held in the year 1851, 16,847 coroners' inquests ; in 1852, 17,656 ; and in 1853, 18,671 ; or 53,174 in the three years. At each of these inquests there were on an average from twelve to fifteen jurors ; supposing that there was an average of *fifteen* on each occasion, it would follow that 769,610 jurors were deputed to form an opinion as to the causes of deaths in 35,174 cases in which those causes were doubtful. It gives us no unimportant view of the frightful deficiency of education amongst the class of men who are summoned to sit on coroners' juries, most of whom are above the level of the labouring classes, to know that out of the 797,610 men thus summoned in the years above named, 34,433 at the lowest estimate, or 1 in 15, were unable to sign their own names.

EPIDEMICS—HYGIENE, ETC., ETC.

THE CHOLERA OF LAST YEAR.

Dr Arnott, Dr Baly, Dr Farr, Professor Owen and Mr Simon, the committee appointed to institute scientific inquiries in connection with the cholera epidemic of 1854, have made their report to the Board of Health. Their principal aims, and the methods by which their attainment was sought, they state as follows :—

"I.—With a view to the descriptive history of cholera, we have examined the larger *statistics of this invasion ;* as to the places wherein the disease chiefly prevailed ; as to the influence of age, sex, and employment in favouring its attack ; and as to its own pathological stages and periods.

"II.—In the hope to gain more precise knowledge of the cause of the disease, we thought it of primary importance that the *air and water of the metropolis* during the epidemic period should be studiously observed, and that special inquiries should, as far as possible, be made into the state of these universal influences in districts actually infected with cholera.

"III.—With the object of increasing for our profession the present insufficient resources of medical treatment, we have endeavoured to procure comparative *records of various therapeutical experience*, successful or unsuccessful, and have invited from persons versed in such inquiry an elucidation of those questions in the *practical pathology of cholera* which appeared to us must urgent for solution."

In reference to the first of these, the committee state the statistical materials at their disposal. These were, lists of deaths from the Register Office, and returns of circular forms from various parts of the country. They extended over portions of two years, and the deaths in London, which were not very numerous in 1853, slightly exceeded the deaths in 1848. In 1849 the deaths from cholera were 14,137; from diarrhœa, 3899; making together, 18,036. In 1854 the deaths from cholera were 10,806; from diarrhœa, 4000; together, 14,806; showing that the reduction of mortality in 1854, as compared with 1849, was 4781 deaths from cholera, and 299 from diarrhœa. The second outbreak began later in the season in the last epidemic than it did in the epidemic of 1849.

"The medical returns show that of 3188 recorded cases of cholera, 1467, or 46 per cent. terminated fatally; so it may be inferred from this proportion that, as 11,661 persons died, about 25,000 were attacked by cholera. The mortality of the cases in the hospitals was 51 per cent.; the mortality of cases that were treated at home was 42 per cent. Again, 5271 cases of diarrhœa were recorded in detail, distinguishing the ages, and 87 were fatal, or the mortality among persons actually attacked by diarrhœa was at the rate of .0165, about 1.65 per cent. And 17,351 cases, 109 deaths by diarrhœa (.00628) may be noted, if we count the additional cases that are returned in numbers without being separately entered. The deaths in London from diarrhœa were 6258, so it is evident that only a small proportion of these fatal cases—occurring chiefly in children and old people—attracted the attention of the medical observers. But we are already justified in inferring that, as 6258 died, some *hundreds of thousands* of the population were attacked by the disease.

"The medical returns show the power of recovery from an attack of cholera at different ages; so that 35 deaths at the age of 15 to 25 imply that 100 persons of the age have been attacked; at the age of 45 to 50, 50 deaths imply 100 attacks; at the advanced age, 75 to 85, 71 deaths by cholera imply 100 attacks. So it is with diarrhœa. And if the proportional number of deaths to cases in the medical returns are applied to the total deaths that were registered at the corresponding ages, the result gives the number that were attacked at all ages by cholera as 24,917 persons; by diarrhœa of some severity as 329,778; by diarrhœa of so slight a nature as to be only brought casually under medical observation, about 519,487; making 874,182 persons in the aggregate who were touched by the epidemic, while 1,642,866 persons escaped unscathed. The estimate of the slight cases is based upon imperfect observations, and we set it down here as a mere indication of the wide influence of the epidemic.

"The aggregate number of deaths by diarrhœa and by cholera in the medical returns was 1576, of cases, 20,648; and if the estimate is taken of these proportions, it will follow that the 17,919 deaths by the two forms of disease imply less than 235,000 cases; but it is evident on the face of the returns that the slighter cases of diarrhœa were in many instances unrecorded, and consequently the severer forms of cholera were returned by the medical observers in a higher proportion than they actually occurred; we have, therefore, made the above estimate on the separate returns."

The medical gentlemen in Scotland who furnished returns of cases to the Board of Health, were—Dr Alexander, Dundonald, Kilmarnock; Mr Aitkin, Ceres; Dr Balfour, Cramond; Mr Campbell, Kilbarchan; Mr Gargow, Girvan; Dr Currie, Islay; Dr Cameron, Balfron; Dr Cowan, Glasgow; Mr Dickson, Bathgate; Mr Dickson, Roberton, by Abington; Mr Forman, Fettercairn; Mr Ferguson, Cove, Aberdeen; Mr Graham, Stanley, Perth; Dr Harper, Leith;

Dr Kirk, Bathgate; Dr Lyell, Newburgh, Fife; Mr M'Donald, Cadder; Dr Mackie, Cupar-Fife; Dr Macfarlane, Drymen; Mr Matheson, Portree; Mr Mactavish, Islay; Dr Orr, Dunoon; Dr Paton, Paisley; Mr Patison, Renfrew; Mr Robertson, Stanley, Perth; Mr Sanderson, Musselburgh; Mr Thomson, Alva; and Mr Tweedie, Galashiels. They reported on 497 cases of cholera in Scotland, of which 243 were fatal, and 665 cases of diarrhœa, of which 7 were fatal.

From another extended series of returns that were procured through the Poor-law Board of Scotland, it appears that the mortality in that country among persons attacked by cholera was 47.5 in 100; for out of 14,430 cases, 6848 terminated fatally. According to these returns, which commence on the 31st August 1853, and terminate on the 17th November 1854, cholera appeared in 227 parishes in Scotland, with the result stated. This result agrees closely with the general result of the English cases, of which 42.2 in 100 were fatal.

"If we assume for a moment," says the Committee, "that all the cases commence with diarrhœa, we may infer that of 142,351 persons attacked of all ages, a certain number, say 132,351, suffer from diarrhœa of some severity, and that after the lapse of a certain number of days 2512 die, 129,839 recover; but 10,000 enter the stage of cholera, and may then be divided into two great classes; 3240 of the *first class*, who do not fall into collapse; 309 of their number dying, 2261 recovering, while 670 pass into consecutive fever, 81 to die in, 589 to recover from, that stage; and 6760 of the *second class* who do fall into collapse, 3913 dying in that stage, from which, however, 1087 recover straightway, leaving 1760 who pass into consecutive fever, in which 612 die, and from which 1148 recover; thus of the 10,000 that we follow in their perilous journey 6760 fall into collapse, 2430 fall into the fever; of the 6760 who fall into collapse, 4525 die either in that stage, or ultimately in the fever stage; of the 3240 who do not fall into collapse, as many as 390 die; of the 2430 who pass into the fever, 693 die."

The danger of an attack of cholera varies with age; thus, at the age of 15-25, out of 100 persons attacked, 34.9 die; at the age of 25-35, the deaths to 100 cases are 35.4; at 65-75, the deaths to 100 cases are 58.2. The mortality of cases of diarrhœa also varies at different ages.

The mortality among the male population was at the rate of 47, among the female population at the rate of 45 in 10,000.

Under the second head of their inquiry, the committee had the advantage of reports from Mr Glaisher, of the Royal Observatory, Greenwich, on the meteorology of London, and of Dr R. D. Thomson and Mr Rainey, of St Thomas' Hospital, on chemical and microscopical investigations of air.

As leading results of Mr Glaisher's inquiry, two facts stand in relief:—

1. That the year 1854, and other years when cholera has prevailed, have had their marked meteorological characters, the general tendency of which has been to render the season defective in those atmospheric changes which renew the purity of the air.

2. That these characters, apparently so definite in their meaning, are in their kind such as to prevail with greatly increased development in those low levels of London, where all visitations of cholera have most cruelly pressed; for high barometric pressure, excessive night temperature, and hazy air, with absence of wind, of ozone, and of electricity, would all (as the station tables show) appear in the most marked degree throughout those alluvial districts.

And when these two statements are compared, it seems probable that, in the most atmospheric conditions of the air (or in some unknown influence essentially joined with them), there has been an important factor for the problem of that epidemic mortality.

The following is an extract from Mr Glaisher's paper:—"I have little hesitation in saying that, were the meteorology of our towns carefully ascertained and collated with that of the metropolis, and both together with that of the country generally (of which last I have a foundation of many years' continuous observations), that in a short time we should be in a condition to elaborate a clear insight into the meteorological causes of cholera, influenza, and many phases of disease which now burst upon us with the suddenness and devastating power of a divine and wrathful visitation."

Summing up the various materials under this head, in their bearing on the general ætiology of cholera, the committee think that the facts recorded enlarge the basis of previous knowledge:—

"The doctrine of epidemic cholera, which has gained almost universal acceptance, does not affect to explain what may be that power—the exciting cause of the epidemic manifestation—which at intervals of time has forayed from place to place about our globe, sometimes vaguely spreading over a widened area, sometimes seeming to move in more defined procession, and which now for the third time has shed its fatal influence on our land. But with this mystery still unsolved, there has grown more and more into shape a doctrine which is both intelligible and practical,—that the undiscovered power in its wanderings acts after the manner of a *ferment*, that it therefore takes effect only amid congenial circumstances, and that the stuff out of which it brews poison must be air or water abounding with organic impurity. Taking this as hypothesis, and testing it by the facts before us, we find that it would include and explain them.

"Either in air or in water, it seems probable that the infection can grow. Often it is not easy to say which of these media may have been the chief scene of poisonous fermentation; for the impurity of one commonly implies the impurity of both, and in considerable parts of the metropolis (where cholera has severely raged) there is rivalry of foulness between the two. But, on the whole evidence, it seems impossible to doubt, that the influences which determine in mass the geographical distribution of cholera in London, belong less to the water than to the air."

On the third branch of the subject, the committee discuss these questions:—Through what channel does the exterior cause of cholera affect the human body? Has the disease a period of incubation? Is it communicable from person to person? What relation does the gastro-intestinal flux bear to the other phenomena of cholera? What is the pathology of the consecutive fever? What are the import, tendency, and characteristics of the epidemic diarrhœa?

Lastly, they make some suggestions for the future:—

"In closing our present Report, and therewith terminating our labours as a committee for scientific inquiries in relation to the late epidemic, we would venture respectfully to suggest, with a view to future emergencies of the kind, that if such inquiries are to be fruitful of result, they should, to some extent, be continued in the absence of the disease which they aim at elucidating.

"Just as there can exist no science of morbid anatomy, till the structure of the healthy body be first well learned; just as there can be no medical knowledge of what makes a symptom of disease, till physiology have first established a standard of natural function: so it is, we believe, with the studies which, in their future development, may perhaps explain the birth of epidemic disease.

"The preparatory steps of such studies are even yet scarcely made. In attempts to elucidate the exact nature of those processes by which epidemic poisons are generated, almost insuperable difficulties have been found; not from want of apprehension as to what the factors may be in such exceptional generation of poison, but from lack of definite knowledge as to the normal working of these factors.

"It seems certain that in the chemistry of organic decomposition there is concealed a large share of the mystery we would solve; and it is impossible yet to say how much of the remainder may belong to undeveloped branches of meteorological science.

" Under any future epidemic invasion which our country may unhappily suffer, it is in these departments of natural science that temporary and exceptional phenomena will claim renewed investigation ; and we hope we do not outstep a proper fulfilment of the trust reposed in us, when we suggest, that in this intervening time are comprised golden opportunities for rendering probable the success of investigation then to be undertaken—opportunities for making effective progress in the preliminary studies to which we advert, and for establishing a better normal standard than is yet discovered, to measure the chemical and meteorological anomalies of an epidemic period."

OBSTACLES TO VACCINATION IN INDIA.

On this subject, Mr Atmaram Pandoorung, graduate of the Grant Medical College, remarks, in a paper published in the *Transactions of the Medical and Physical Society of Bombay,* that amongst all classes of the natives of India, the distinction between vaccination and inoculation is not sufficiently understood, and that the want of success of inoculation is ascribed to vaccination. Instances of death from inoculation are not uncommon ; and when one occurs, rumours are circulated calculated to injure the practice both of inoculation and of vaccination, but especially the latter. Again, there is a native belief amongst the ignorant that small-pox is sent by a certain deity in its mild or severe forms as a punishment for sin, and that it would be offering this deity an offence to interfere with his will. Inoculation is practised in the Concan and Deccan under the name of the potter's process, which consists in scarifying the flesh freely, and inserting the dried crusts removed from the eruption of small-pox. The practice of vaccination is called the government process ; and the writer believes that the natives believe in its efficacy, but that they exaggerate failures, and are not fully impressed with its importance. Absence of information on the subject is therefore the chief cause of the want of success of vaccination in India. But there are other secondary causes, one of which is peculiar. The middle classes of the Hindoos are accustomed to expend large sums of money in celebrating the day upon which their children are either inoculated or vaccinated, and they are deterred from the practice in many instances on account of the expense implied. For extending vaccination, Mr Pandoorung, (whose opinion as a native ought to have great weight) deprecates coercion. He thinks that the employment of qualified physicians as vaccinators, and the circulation of tracts on vaccination in the vernacular language, would lead soonest to success.—*Journal of Public Health.*

STATISTICS.

THE AVERAGE DURATION OF HUMAN LIFE IN VARIOUS COUNTRIES AND AT DIFFERENT EPOCHS.

In France a sixth of the population dies at the end of the first year; a fifth at the end of 2 years; a third at the end of 14 years; the half at the end of 42 years; the three-fourths at the end of 69 years; the four-fifths at the end of 72 years, and the five-sixths at the end of 75 years.

Before 1789, Duvillard calculated that of 100 men, 50 live to 20 years ; but since 1789 there is a marked improvement, and the observations of Bienaymé, from 1823 to 1831, prove that 60, and not 50 is the true proportion. Demontferrand says that of 100 men, 7 live to 80 years, 2 to 85, 1 to 89 ; and that in a million of our race there are only 640 nonagenarians (from 90 to 99 years). Matthieu stated the number at 491, and of these only nine reached the age of 97 years, and 4 that of 99.

Centenarians, according to Duvillard and Demontferrand, exist in the proportion of 2 in every 10,000. There are, however, privileged countries. Thus, at Carlisle, Milne found 9 in the 10,000. At most one dies in Paris every year.

Benoiston de Châteauneuf having examined 15 million lives, finds that 44 in 100 live to the age of 30 ; 23 to 60 ; 15 to 70 ; 4½ to 80, and $\frac{44}{73}$ds to 90.

At present the average duration of life in France appears to be 39 years 8 months. Twenty years ago, Bienaymé valued it only at 36 years, and Demontferrand represented it at 33 years 8 months. In 1817 it was only 31 years 3 months ; before 1789, according to Duvillard, 28 years 9 months ; and Villermé has established that in Paris during the 18th century it was 32 years ; in the 17th, 26 years, and only 17 years in the 14th century.

In France but one septagenarian is found among every 33 individuals ; one octogenarian in every 160, and but one nonagenarian in 1900. Of these last there are nearly 17,500. Matthieu, however, computes that in every 174 persons there is one octogenarian, and one nonagenarian in every 1740.

At Geneva the average duration of life was 18 years 5 months in the 16th century ; 23 years 4 months in the 17th, and from 32 to 33 years in the 18th ; from 1815 to 1826 it has risen to 38 years 10 months.

At present in France, as we have seen, the average duration of life is 39 years 8 months, that is to say, on our birth we have before us 39 years and 8 months of probable existence ; at 4 years, a period when all the favourable chances are united, we have 49 years 4 months ; according to Deparcieux, we have only 40 years and 3 months at 20 years of age ; 34 years and 1 month at 30 years of age ; 27 years 6 months at 40 ; 20 years 5 months at 50 ; 14 years and 3 months at 60 ; 8 years and 3 months at 70 ; 4 years and 8 months at 80 ; and 1 year and 9 months at 90.

In 1840 the average duration of life in England was 38 years ; in France 36 years and a-half ; in Hanover, 35 years 4 months ; in Schleswig-Holstein, 34 years 7 months ; in Holland, 34 years ; in the Duchy of Baden, 32 years 9 months ; at Naples, 31 years 7 months ; in Prussia, 30 years 3 months ; in Wurtemberg 30 years, and 29 years in Saxony.

Demontferrand has divided into three classes the departments where life is the longest, and also those where it is briefest. In the first class, which is that of the longest livers, there are 28 departments : Calvados, Gers, Basses-Pyrénées, Cantal, Charente, Orne, Lot-et-Garonne, Lot, Maine-et-Loire, Aveyron, Gironde, Lozère, Deux-Sèvres, Manche, Tarn-et-Garonne, Doubs, Mayenne, Dordogne, Creuse, Loire-Inférieure, Eure, Vienne, Haute-Marne, Indre-et-Loire, Haute-Loire, Ariége, and Haute-Garonne. The average duration of life for example, is 44 years 7 months in the Calvados and the Lot-et-Garonne.

The second class contains 33 departments : Jura, Puy-de-Dôme, Vendée, Sarthe, Charente-Inférieure, Corse, Seine-et-Oise, Somme, Oise, Tarn, Seine-Inférieure, Corrèze, Eure-et-Loir, Côte-d'Or, Pas-de-Calais, Ardennes, Aube, Marne, Drôme, Allier, Vosges, Ille-et-Vilaine, Isère, Yonne, Var, Meurthe, Meuse, Aude, Laudes, Herault, Ain.

The third class comprehends the other 25 departments. In Finisterè and Pyrénées-Orientales the average duration of life is only 28 years 2 months and 28 years 1 month. Females have the advantage ; thus in every 100 of each sex, at 10 years there are 58 females and 53 males alive ; at 20 years, 58 females and 48 males ; at 50 years, 33 females and 30 men ; at 60 years, 23 females and 23 males ; at 70 years, 15 females and 13 males ; at 80 years, 5 females and 4 males, according to Benoiston (de Châteauneuf) ; and although 17 boys are born for every 16 girls, the proportion is soon re-established ; thus at the end of one year for every 1000 children of each sex there are 848 girls and 823 boys alive.

These observations, made with the greatest possible accuracy, are curious in the extreme, and from them the legitimate conclusion is drawn that the average duration of life in Europe, and especially in France, is increasing every year.—*Moniteur—quoted in the Gazette des Hôpitaux, July* 14*th* 1855.

POPULATION AND MORTALITY OF ENGLAND.

" Mr Finlaison estimates the population of England for the close of the seventeenth century at about five millions and a-quarter of *souls*. It is to be presumed that, in fixing this amount, he has not been hypercritical in the matter of psychological qualification, and that it may therefore be taken for granted that this number expresses the sum total of unfledged bodies which moved about upon two legs in the land of the Angles at that time. At the middle of the nineteenth century, appointed enumerators found that the five millions and a-quarter had become, in round numbers, eighteen millions; that, in fact, the inhabitants of England (not taking Scotland into the account) had nearly quadrupled themselves in 150 years, besides sending countless crowds to people vast lands in the west and in the south. In the year 1851, it was found that London contained within its own precincts nearly half as many inhabitants as all the island held in 1701. On one memorable day—the 9th of October 1851, there were collected in a single hall erected in one of its parks, a 56th part of the full compliment of English people that were alive in 1701. The Registrar-General has endeavoured, in his report of the result of the recent census to furnish a definite idea as to what millions mean where population is concerned. He states that if every person living in Great Britain had only a square yard to stand upon, there would be still seven square miles of the crowd when all were collected together; or if every individual were planted out over the surface of the island, as cabbages are planted out in the best arranged market-gardens, each would be 108 yards away from his neighbours. Let the entire crowd of these animated cabbages be gathered from all the corners of the land, and be required to file through Temple Bar in a column of four deep, and moving at a quick marching step, it would take three months of twelve hour days (Sundays being allowed for rest) to get the entire living stream through; if a single individual were to undertake to pass them through a gate, as turnpike men do flocks of sheep, enumerating them at the rate of one every second as they went, he would be a year and a-half, working twelve hours a-day (exclusively of Sundays) before he finished his task. Now, it has been ascertained that this vast mass of people is at the present time occupied with doubling itself every fifty-two years and a-half; so that if the same state of affairs were to continue without interruption or change until the year 2534, the inhabitants of Great Britain, instead of each having the space of 180 square yards to himself, would all touch each other by the elbows. There would be just standing room for all, but no one must think of moving. Britannia, with its eleven degrees of longitude and ten degrees of latitude, would then look from the ocean like a huge rock covered by its impenetrable crowd of penguins or boobies. Such, indeed, under these circumstances, would be the prospects of our favoured land.

These considerations are surprising in themselves; but there is an important fact connected with them, that greatly enhances the wonder with which they are contemplated when it is brought prominently into view. This rapid augmentation in the ranks of the population has gone on, not only in despite of a constant emigration to foreign lands (more than two millions and a-half of individuals emigrated between the years 1821 and 1851,) but also in the face of the yet more serious drain from the operation of the ordinary conditions of mortality. More than 1000 people died every day in England and Wales during the year 1850.

Of the eleven millions who were alive in 1801, eight millions had passed to the silent tomb, before those eleven millions had multiplied into twenty-one millions in 1851. Before the twenty-one millions can become forty-two millions, which they would do by 1904, under the present rate of increase, at least thirty millions will have been swept from the earth, by either premature or natural decay. By that time nineteen millions of British subjects will also have found a foreign home, even if the rate of migration does not increase with augmenting numbers. But emigrants double their ranks in considerable less time than half a century, on account of their consisting almost exclusively of individuals included within the reproductive periods of life. Hence, the nineteen millions British emigrants scattered over the world will be really more than thirty-eight millions in their new houses. If, then, the existing state of things be continued without modification for another half-century, it may fairly be assumed that the twenty-one millions at present inhabiting our island will have changed themselves into a hundred millions of souls. In reality, it is known that this rate of multiplication does not take place over any large area of the earth, on account of various modifying and repressing influences that are continually at work. Thus, although the population of Great Britain nearly doubled itself in the half century that preceded 1851, there was an absolute diminution of numbers in the year 1850, if taken alone. In that year the excess of births over deaths amounted to 224,000; but 280,000 emigrated during the same period. There were 56,000 more departures than arrivals; and the British field of human plants was therefore thinned out rather than thickened, in this interval. Still the abstract fact remains, that the real reproducing power of man in a state of civilization is expressed by a fivefold increase in half-century periods; at the lowest estimate, when every circumstance is favourable to the result, twenty millions made into a hundred millions, living and dead, may be taken to be a rude expression of the powers of human fertility.

The numbers in any population, where the births represent all arrivals, and the deaths all departures, must always be in a certain ascertainable ratio to the mean duration of individual life, taken in connection with the amount of the additions by birth in each year. The number of yearly births multiplied by the mean length of individual life in years, under such circumstances always gives the sum of the population. Thus, in 1851, when England and Wales contained eighteen millions of people, the births amounted to about 600,000; and accordingly the average duration of individual life would have been fifty years, if there had been no other drain upon the numbers than that produced by death (600,000 × 30 = 18 millions). In reality, however, as the eighteen millions represented a result lowered by the drain of emigration, as well as by that of death, the true value of individual life was considerably higher. It is only under circumstances of great exposure to deleterious influences that the expectation of life sinks so low as this in England. In the worst managed workshops in London, where men of intemperate habits sit long in a close, impure atmosphere, the average duration of life does not rise above thirty-two years; but in cities generally it reaches thirty-eight years, and in the open country, it is as high as fifty-eight years.—*Mann's Philosophy of Reproduction.*

MORTALITY AND PUBLIC HEALTH OF ENGLAND.

A blue-book of 250 pages contains the report of the select committee on the Public Health and Nuisances Removal Amendment Bill. The Committee simply report to the House the evidence taken, which includes that of Dr Farr, Dr Snow, Mr Toulmin Smith, Mr Alderman Copeland, and several other gentlemen. From the evidence of Dr Farr, who is at the head of the statistical department of the General Register Office, we gather that among the working men of London, Birmingham, and Manchester, the mortality is probably double what it is in the healthy districts whereby they are surrounded—the mortality of males in Manchester having been, from 1838 to 1844, 37 in 1000, and the mean lifetime 24·2 years, whereas Dr Farr holds that the natural rate of mortality should not exceed 17 in 1000. The average mortality of England is 23 in 1000, and there is, it appears, a constant tendency in a country like England to an increase in the rate of mortality, unless it be counteracted. "The town population of Great Britain," says Dr Farr, "is now above 10,000,000, and the mortality is greater in proportion to the whole population than it was in 1821 or 1831. There is a constant tendency, therefore, in the general mortality of the country to an increase; the health of the country will decline, and the strength and vigour of the population will decline, unless measures are taken to improve the large towns." The increase in the mortality may also, perhaps, be attributed to the prevalence of cholera and influenza of late years. Dr Farr opines that good feeding and a superior quality of food fortify the health of the inhabitants of badly drained and dirty districts in towns, whereas the ordinary food of the agricultural population appears, generally speaking, to keep them in such a state of health as we see indicated. It is found that recruits for the army from towns are much less vigorous than those taken from the rural districts. As regards the metropolis, Dr Farr gives the rate of mortality in the various districts, it being in Lewisham 17 in 1000; in Hampstead and St George's, Hanover Square, 18 in 1000; in Kensington, Islington, and Wandsworth, 19 in 1000; in the city of London and in Hackney, 20 in 1000; in the Strand and St James's, Westminster, 22 in 1000; in St Martin's-in-the Fields, Marylebone, Pancras, Clerkenwell, St. Olave's, Southwark, and Camberwell, 24 in 1000; in Lambeth, St. Luke's Bow, Stepney, and Poplar, 25 in 1000; in Bethnal-green, East London, and St. Mary's, Newington, 26 in 1000; in St Giles, Westminster, and in Greenwich, 27 in 1000; in Holborn and West London (city), and Shoreditch, 28 in 1000; and the same in Bermondsey and Rotherhithe; in St George's-in-the-East and Whitechapel, 29 in 1000; in St. George's, Southwark, 30 in 1000; and in St Saviour's, Southwark, 33 in 1000. The average mortality in the metropolis is 25 in 1000. Dr Farr concludes his evidence with the expression of an opinion that several of the sanitary measures embraced by the Public Health Act are required in every district of the kingdom; that the act should, therefore, be universally applied like other measures for the protection of life; and that, if there be any restriction, such restriction should extend only to districts which can prove that their mortality does not exceed the normal rate of 17 in 1000; or, if it should be deemed better policy to tolerate for a season a certain amount of (unnecessary) disease, suffering and death in the country, and to fix on an arbitrary standard, 23 in 1000 is the highest rate that should be named. It may be assumed that all deaths above the normal standard are "unnatural" deaths, caused not by the dispensations of Providence, but by a violation of sanitary law in the highest sense of the term. It has been shown that the mortality of London is 24 to 25 in 1000; in Berlin it is the same; in Turin it is 26 in 1000; in Paris, 28 in 1000; in Genoa, 31 in 1000; in Lyons, 33 in 1000; in Hamburg, 36 in 1000; in Moscow, 38 in 1000; in St. Petersburg 41 in 1000; in Stockholm, 39 in 1000; and in Vienna, 49 in 1000. As a specimen of the state of society in the Austrian capital, it may be stated that more than half the deaths there occur in hospitals and asylums, and that more than half the children are bastards, 3525 having died in the foundling hospitals in a single year. The mortality of the different countries is as follows:—In England, 23 in 1000; in Denmark, the same; in Holland, 24 in 1000; in France, 23·5 in 1000; in Sweden, 24 in 1000; in Prussia, 28 in 1000; in Sardinia, 30 in 1000; in Austria, 31 in 1000; and in Russia, 36 in 1000.—*Times.*

AVERAGE ILLNESS AMONG THE LABOURING CLASSES.

Upon this subject Mr Finlaison, in his second report upon Friendly Societies, affords some interesting information, which is worthy of a careful perusal by the managers of these institutions. From the statistics furnished to him he calculates the average number of days' illness per annum suffered by the population at different ages. At the age of 45 he states that 99 out of the 100 benefit clubs close their doors to the admission of candidates, and we find that above that age the number of illnesses begin to increase. Between 15 and 16 the average number of days per annum in persons engaged in general labour is 6¼; between 16 and 26, 6¾; between 26 and 36, 7; between 41 and 46, 8¾; between 46 and 51, 10½; between 51 and 56, 12¾; between 56 and 61, 16¼; between 61 and 66, 23½; and between 66 and 71, 36 days. Mr Finlaison adds, on an examination of the amount of sickness per annum, recorded for the whole mass of the male members of friendly societies, from the age of 15 to that of 85, it may be premised that almost exactly five years' sickness is undergone by the men in the seventy years of time. But during the period of labour—that is from the commencement of the 16th year of age to the close of the 66th—there are in these 51 years but 78 weeks, or exactly one year and a half of sickness. Further, that in respect of this period of labour, the sicknesses, during what may also be termed its second moiety—viz., from the age of 41 to that of 65—is almost exactly the double of that undergone in the previous moiety—from the age of 15 to that of 41 years. For the sicknesses during the first 26 years of manhood is exactly half a year, of 182½ days, while it is 362¾ days or almost exactly one whole year, during the next ensuing 25 years of maturity.

MORTALITY FROM NAVAL OPERATIONS.

At a meeting of the London Statistical Society, Mr W. B. Hodge read a paper "On the Mortality arising from Naval Operations." Among an average force of 110,180 men during twenty years' hostilities, between 1793 and 1815, the deaths in action were 6663; do. in ships accidentally wrecked or burned, 13,621; do. from disease or accident on board, 72,102; total, 92,386. The proportion of the British loss in killed and wounded in the action off Cape St Vincent was 32 to every 1000 British engaged, 19 to every 1000 of the enemy engaged, and 75 to each ship taken or destroyed. At Trafalgar these figures respectively rose to 100, 78, and 94; at the Battle of the Nile to 112, 91, 82; at Camperdown they were 100, 115, and 92. In the first action our enemy was Spanish; in the second, Franco-Spanish; in the third, French; and in the fourth, Dutch. The highest ratio of loss in any attack made by large fleets would be found in Lord Exmouth's bombardment of Algiers, where the casualties reached 147 per 1000.

SICKNESS AND MORTALITY IN FRANCE.

From a table constructed from observations in the hospitals of Paris for the year 1850, and republished in the *Assurance Magazine* for April 1855, it appears that masons, amongst males, present by far the highest figure as sufferers; next come the tailors, the house-painters, then bakers, then turners, then smelters; amongst these the *days of sickness* are longest in the masons, next longest in the tailors, next in the painters, next in the bakers, next in the turners, and next in the tanners. Of all these the *mortality* is highest in the tailors; the masons follow, and the other occupations in the order we have already given. Out of 6715 women attacked with sickness during the above period, not fewer than 4268, or nearly two-thirds, were confectioners. In a remarkable work on the benevolent institutions of France, M. de Watteville, in 1851, stated the ratio of deaths in the hospitals of Paris to be 1 in 11, both for males and females. This was for the year 1847, which, from the dearness of provisions and the consequent misery in the poorer classes, must be considered exceptional. He estimates, also, the average duration of sick cases in the hospital as twenty-four days for males and twenty-five for females. The average mortality amongst female cases seems to be greater than amongst males, the former being 1 death for 11·94 patients, and the latter 1 in 13·92; but this may arise from females not having recourse to the aid of the hospital till the last extremity.

Part Fourth.

MEDICAL NEWS.

THE MONTH.

The conspicuous local event of the month is, without doubt, the resignation of Dr Alison, as Professor of the Practice of Medicine in the University of Edinburgh. Bad health has induced Dr Alison to quit the active duties of the Chair which he has so long adorned; and his retirement will be regarded with universal regret, not only in medical circles, but by the entire community. Although, as will be seen in another page, he has been most properly appointed *Emeritus* Professor, and, therefore, nominally retains his connection with our University, yet, at this turning point in his career, we cannot forbear alluding summarily to the high position of Dr Alison as a teacher and practitioner of medicine. Like all distinguished men, diversified gifts found in him a common centre. In his case, genius has been happily blended with persistent effort—and, what is still more rare, lofty principle and firmness have been allied to the utmost simplicity and openness of character. As the natural result of such combination, he not only commanded the esteem of the profession, but he has also stood deservedly high in popular estimation, as one of the most enlightened philanthropists of his day. Consulted by the opulent for his skill, affluence was open to him, but pecuniary aggrandisement did not make him insensible to the claims of the poor, which were ever urged on him with a clamancy which must have tasked, but never wearied, his active benevolence. Connected thus closely with the two extremes of society, Dr Alison was known to all, and by all is he honoured and venerated. Jealousy, intrigue, hauteur, peevishness, or any of the other vices that unfortunately are sometimes developed in the high places of professional life, found no place in his nature; and if detraction of any kind ever did sully his fair fame, it passed away as moisture from the surface of a mirror. To private life, Dr Alison carries with him the warmest sympathies of all; and, we are sure, that we only give utterance to the universal feeling, when we express our hope that returning health may yet be in store for him, and that, if not permitted again to discharge academic duties, the evening of his life may be passed in serenity and peace.

The Town-Council of Edinburgh, who are the patrons of Dr Alison's chair, have rarely had a more important duty to perform than the filling up of the existing vacancy, whether we regard the Chair itself or the *status* of its late occupant; but, we have no fear as to the manner in which they will discharge that duty. They will, no doubt, be guided as in time past, by a due sense of their responsibility, and so induced to make such a selection as will maintain and extend the reputation of the Institution entrusted to their care. It will not be expected that we should chronicle all the gossip that has been current regarding candidates for this Chair. Several gentlemen, already holding Chairs, have been named for the vacancy, and far-stretching eventualities have been traced out, on the supposition that, to fill the Chair of the Practice of Medicine, other Professorships must become vacant. On such probabilities, immediate or contingent, we cannot enter; and we shall sufficiently discharge our duty by naming the candidates who have openly entered the field. These are Professor Bennett, Dr A. Wood, Dr A. H. Douglas, and Dr W. T. Gairdner, of Edinburgh; Dr Neligan, Dublin, and Dr Laycock of York.

We are glad to observe that Dr George Wilson is to have allotted to him more active functions than at first were supposed to have fallen to him as Director of the Industrial Museum for Scotland. He has been appointed Regius Professor of Technology in the University of Edinburgh; the province of the new Chair being to expound the bearing of the arts on the useful purposes of life. Such a course could not be in better hands.

A disagreeable, and, as we think, useless controversy has been going on between Mr Wakley of the *Lancet*, and Dr Hassall, relative to the credit due to each of these gentlemen in connection with the parliamentary movement regarding the adulteration of food. It would appear that Dr Hassall first sends to the *Lancet* an article on the subject; and after some correspondence, it is resolved that Dr Hassall shall extend his analyses and exposures to all kinds of food, purchased from a variety of dealers. Mr Wakley is to be at the expense of the investigation; and he is to publish in his periodical, the names of the vendors of the different samples analysed. Here, then, we have skill on the part of Dr Hassall, and boldness, enterprise, and liberality, on that of Mr Wakley. And what need of more being said on the matter? It was open to any other chemist to have proposed inquiry into the adulteration of food and drugs, but as no one did, and, therefore, *pro tanto*, Dr Hassall should have merit awarded to him. But, whilst there never is any want of bold contributors and editors; bold publishers are by no means so plentiful. Had Dr Hassall sent us his papers, we frankly admit that, with the terrors of the Scotch jury court before us, we would not have admitted one of them, and therefore, we are bound to give credit to our contemporary for having undertaken a responsibility which we should undoubtedly have shrunk from. At the same time, we condemn, as one of the weaknesses of the present day, the frequent squabbles as to the different degrees of merit to which particular parties are entitled in given cases. All wise men should leave their reputation to take care of itself. If they will only have faith in their contemporaries and posterity, justice will be done to them in the long run. The recent controversies about Cavendish, Watt, Priestley, and Dalton, show that even the dead never lack champions to vindicate their rights, when the matter in dispute involves elements of importance.

The defective state of our laws regarding mental diseases, has led to great and criminal neglect of idiots; and it is to our national disgrace, that the care bestowed on this class of unfortunates on the Continent, has not sooner been imitated by us. In the neighbourhood of Dundee, an institution for the reception of idiots, has been opened through the care of Sir John Ogilvy, bart.; and in Edinburgh, a similar establishment has been commenced, for which the community are indebted to Dr John Coldstream, and, regarding which, some details are given elsewhere. We trust that the report of the new Lunacy Commission for Scotland, may suggest some general scheme for the protection of these helpless objects.

RESIGNATION OF PROFESSOR ALISON.

EDINBURGH TOWN-COUNCIL PROCEEDINGS.

The Council met on Tuesday, August 14—the Lord Provost in the chair.

Bailie Morrison said that, before proceeding with the ordinary business, he had a matter of some importance to lay before the Council. He had had that morning put into his hands the resignation by Professor Alison of his chair in the University—an announcement which would be received with profound regret by every gentleman present—(hear, hear). He (the Bailie) might mention that early in July he had a letter from the Professor, stating that his health was very precarious, the likelihood of his not being able to resume his duties in the ensuing winter; and requesting that in the first instance he should lay the letter before the College Committee before bringing it under the notice of the Council. He thought it his duty to show the communication to the Lord Provost as chief magistrate; but as they were both on the eve of starting for London about the Natural History Chair, nothing further could be done in the matter until their return. To enable the Council to understand, it would be well to read that part of the Professor's letter relating to this matter:—

"What occurs to me as the proper line of conduct in these somewhat difficult circumstances, is to make known to the patrons of the University frankly and openly the state of my health and my feeling as to the performance of my duty, and my willingness to resign my office, if it shall appear to them that it is necessary for the due performance of the duty next winter, that this step should be taken now; and, at the same time, to intimate to them that if it shall be their pleasure to reappoint me to the office, with another professor, on whom the whole duty and the whole emoluments shall devolve immediately on my death or entire disability. I shall feel greatly relieved by the responsibility of the chair being thus taken off, and shall be willing and anxious, if I shall feel able for it, to undertake a part of the duty, especially of the lectures in the College, and the examination of candidates for the degree in future years, under such arrangements as to the emoluments as may be sanctioned by the honourable patrons in the event of such division of the duties being necessary."

Now the College Committee saw innumerable difficulties to the appointment of a joint professor, and he was requested to write to Dr Alison, intimating their views, and expressing a hope that the state of his health might enable him to go on next winter with the same satisfaction to the patrons and the public as last year. In answer to that communication, the professor stated that that was very unlikely, though, at the same time, if it were the wish of the committee, he would try what could be done with that view. The committee thought, however, that under all the circumstances, it would be more beneficial to the professor's own health that he should be relieved entirely from the duties of the chair. He (Bailie M.) was requested by the committee to call upon Dr Alison; accordingly, he saw the professor yesterday afternoon, and had some conversation with him. He candidly admitted the unsatisfactory state of his health, and that in duty to the patrons and the chair, he was willing to resign his office at once; and, accordingly, he (Bailie M.) received the following letter that morning from the professor resigning the chair:—

"Woodville, Collinton, Aug. 13, 1855.

"Dear Sir,—Referring to your kind letter of the 7th and 31st ultimo, and to our conversation this morning, and keeping in mind that the attack of my complaint, by which I was confined to the house all last week, has been the most severe of any that I have suffered during the last eight years, I am fully convinced that it would be wrong to trust to the state of my health being such, during next winter, as to enable me to undertake the responsibilities of my class with such an amount of assistance as I had last session.

"Referring, however, to the opinion you express as to my case being one to which a retiring allowance from the fund recently set apart for that purpose is fitted, I beg to say that if the members of the Town Council on receiving my resignation—which you are now authorised to lay before them—shall think it right to confer on me the title of Emeritus Professor of the Practice of Medicine, I shall feel myself more highly honoured than by any other possible appointment; and if they shall think fit to recommend me to the Senatus Academicus (whose concurrence in voting a retiring allowance I understand to be necessary), I have no doubt that I shall soon be able to make such an arrangement with the person they fix on as my successor as shall leave the entire emoluments of the chair—*i.e.*, of the systematic course, of the Clinical Lectures and of the graduations at his disposal.

"I beg leave again to return you my best thanks to yourself and the other members of the College Committee, for the very kind and flattering terms in which you have expressed yourselves in reference to my services in the University.—I am, dear Sir, with much respect, your very obedient servant,

"A. Morrison, Esq. "W. P. ALISON."

The committee stated to Dr Alison that, if it was any object to him to retain the status of a professor, the committee would be happy to appoint him *Emeritus* Professor; they also stated, if the Senatus Academicus were disposed, as they had done in former cases, to grant a retiring allowance, the Council would go in with such an arrangement very cordially, as it was a slight recognition of the services of a gentleman who, both as a private individual of great benevolence, and as a lecturer and practitioner of medicine in this city, had long enjoyed a high reputation. He thought the Council should hold this letter as an unconditional resignation, and remit to the College Committee to advertise the vacancy. This was now the middle of August, and there would be very little time for men to come forward as candidates who would be ready to start when the University opened in November. Perhaps, therefore, the Council would fix the day of election now.

The Lord Provost—I am sure I express the sentiments of every one here, of the constituency of this city, of the Senatus Academicus, and of that honourable branch of the profession to which Dr Alison belongs, when I say that the intimation now made will be received with profound sorrow and regret. Dr Alison has now been connected with the University of Edinburgh for no less a period than thirty-seven years. In the year 1818 he was appointed assistant to Dr Gregory. In the year 1820 he had conferred upon him the office of Professor of Medical Jurisprudence, and in 1821 he was appointed joint Professor of the Institutes of Medicine. When the Chair of the Practice of Medicine became vacant in 1842, by the resignation of Dr Home, I find that such was the high appreciation in which his talents were held, that this Council unanimously agreed to offer Dr Alison the appointment of the chair which was then vacant; and that Dr Alison having agreed to fill the chair he was then unanimously appointed. Whether in the walks of private life, or while discharging the important duties of the office which he held in the University, Dr Alison was conspicuous for his talents, for his benevolence, and for his attention to the duties of his chair. And I cannot help saying, that this Council by electing him to the office of *Emeritus* Professor will do credit to themselves, and perform an act for which I am sure they will receive the gratitude and approval of every member of the community. It has been said by a gentleman on my right hand, that it is not usual to recommend a retiring allowance immediately on accepting a resignation. But, gentlemen, we are not here called upon to act under ordinary circumstances. The great length of time he has held office, and the high position Dr Alison occupies in the esteem and affection of the people of this city, may amply justify us in departing from the ordinary course. In this case, therefore, I trust we shall at once unanimously proceed to recommend to the Senatus Academicus of the University to adopt that part of their funds at their disposal for the purpose, towards an object in every respect so praiseworthy, and which will, I am sure, receive the cordial approbation of every one whose attention may be called to the subject. (Applause).

Mr Forrester perfectly concurred with all that had fallen from the Lord Provost, more especially with his remarks as to a retiring allowance, as any sum the Council could propose would never be equal to the private charity the Professor had given out of his own pocket. They all knew the celebrity Dr Alison had conferred on the University, and it would ill become the patrons to do him scrimp justice in this matter.

The following motion of Bailie Morrison, as finally amended, was adopted as the unanimous deliverance of the Council:—"That the Council express their deep sympathy with Dr Alison in his affliction, and their profound regret that the state of his health should have rendered his resignation necessary; resolve, that his resignation be accepted, and that he be appointed *Emeritus* Professor of the Practice of Medicine, and that it be recommended to the Senatus Academicus to confer a suitable retiring allowance upon one whose services have reflected so much lustre on the University: And that the Council proceed to fill up the vacancy caused by his resignation, on the first Council day in October, and remit to the College Committee to communicate with the Senatus on the subject, and to give the necessary notice of the vacancy in the public newspapers, and to report to the Council."

The Lord Provost remarked that this had been a very delicate matter, requiring a good deal of negotiation before it had reached the stage at which it had now arrived. The letters of Dr Alison just breathed the spirit they would have expected from such a man. It was evident that Dr Alison had been met in the same spirit by Bailie Morrison, to whom the Council were so indebted for the trouble he had taken in the matter. He therefore proposed that the most agreeable course now to follow, both for the Council and Dr Alison, would be for Bailie Morrison to communicate the resolution of the Council to the Doctor—(cries of "Agreed, agreed.")

On the Electrical Apparatus in Torpedo, Gymnotus, Malapterurus, and Raia.

By John Goodsir, F.R.SS.L., and E., Professor of Anatomy.

(*A Lecture delivered in the University of Edinburgh. Summer* 1855.)

On each side of the tail of the skate (Raia), partly in contact with the skin, but chiefly enveloped in the so-called sacro-lumbalis muscle, is an elongated fusiform mass, which, although its electro-motor power has not yet been experimentally determined, nevertheless exhibits, all the structural characteristics of an electrical battery. The mass consists of a number of longitudinally and somewhat spirally arranged series of disks; the series being separated from and connected to one another by thicker, the disks by thinner, layers of areolar texture. The disks are somewhat triangular, quadrangular, or pentangular in form; and are invariably arranged, so that their two large surfaces or faces are directed, the one backwards, the other forwards; and their three, four, or five smaller surfaces or margins enter into the formation of the surface of the series to which they belong. Of the two large surfaces, the anterior, or that towards the head of the animal, is smooth and slightly convex; the posterior slightly concave, and presents numerous alveolar depressions of various but graduated sizes, which penetrate two-thirds through the disk, and are separated from one another by corresponding straight or slightly curved partitions, which diminish in size as they pass off from three or four primary ridges, which radiate from near the centre of the surface, and thus separate the alveoli into larger and smaller elliptical or angular groups. The disks consist of jelly-like dotted or granular nucleated substance; the granules being arranged in the form of spheroidal shells around clear spaces, in each of which a nucleus is situated. The ultimate ramifications of the vessels and nerves are situated not *in* but *on* the two large surfaces or faces of the disks; the former on the concave, alveolar, or posterior face; the latter on the convex, smooth, anterior face: and like the vascular and nervous trunks and branches of the organ, lie in the midst of the areolar texture, which forms the greater and lesser laminae of separation and connection of the constituent series and disks of the battery. The ultimate arterial twigs enter the areolar texture which lines the concave face of each disk; and pass into the alveoli as bundles of looped capillaries; which are continued into similarly arranged venous radicles. A number of ultimate nervous filaments spread from one of its margins through the areolar lamina, which clothes the convex face of each disk, preserving their double contours, until becoming somewhat narrower, they divide into two or three secondary filaments, which, assuming an elongated fusiform aspect, and enclosing a nucleur mass, pass into corresponding secondary divisions of neighbouring filaments. The smooth convex surface of each disk is thus covered by an areolar lamina, which contains a net-work of ultimate branching and anastomosing nerve filaments; the secondary or division filaments, which form the boundaries of the meshes of the net-work, having a peculiar festooned or looped fusiform aspect, with a mass resembling a nucleus in the centre of each.

Mr Goodsir now directed attention to the resemblance which this organ bore to the batteries of Torpedo, and more particularly of Gymnotus, in the peculiar relations of the nerves, vessels, and nucleated texture; and stated that, if an electrical current exists in certain circumstances (probably when the animals are in season), it must pass in a contrary direction to that of the Gymnotus, that is, from tail to head.

These organs in the tail of the rays were discovered by Dr Stark, of Edinburgh; and their relative and general structure, as well as their probable function, described in an able paper read to the Royal Society of Edinburgh, in 1844 (*Proceedings of the Royal Soc. Edin., Dec.* 1844). As Dr Stark's description did not involve a sufficient account of the microscopic structure, which, in the absence of direct experimental evidence, could alone afford the basis of a legitimate hypothesis as to the function of the organ, Mr Goodsir at the time undertook that inquiry, and stated the results in a paper read at a subsequent meeting of the Society (Proceedings of Royal Soc. of Edin., 1844). In this paper the presumed electrical organ was described as consisting of antero-posterior, or linearly arranged series of compressed chambers, lined by a nucleated gelatinous vascular substance; and suspended in the cavities of the chambers numerous sling-like anastomosing ultimate double contour nerve tubes, with the centre of each loop occupied by a nucleus. There was also described a peculiar undulating ridged structure (the alveoli of Robin), somewhat similar to the grooved and pitted marking on the dermal plates of certain fossil fishes; but the relations of this structure to the nucleated gelatinous texture, were not determined; although its probable importance was indicated as a characteristic feature in an organ which could only be referred to electrical structures.

The entire structure of the presumed electrical apparatus in the rays, has, since Dr Stark's discovery, been rediscovered, and most minutely and accurately described by Robin (*An. des Sci. Nat.* 1847); and from his descriptions, as verified by Mr G., the account in this lecture has been derived.

As the four nerves distributed to each battery of Torpedo, are branches of the fifth and eighth cerebral pairs, the nervous centre of its electrical apparatus is situated in the medulla oblongata, and consists of a large lobe on each side of its anterior part. Valentin (*Electricität der Thiere in Wagner's Handwörterb.*) states that these lobes consist of nucleated cellules so large as to be visible to the naked eye. The anterior or trigeminal electrical nerve is derived from the non-ganglionic portion of the third division of the fifth; the three posterior or vagal electrical nerves pass out along with the branchial divisions of the eighth nerve, but have no connection with the ganglionic masses developed on the branchial nerves. These electrical nerves belong, therefore, to the non-ganglionic series, with central relations similar to those of motor nerves.

The batteries of Gymnotus are supplied by about 224 pairs of nerves. (*J. Hunter, Phil. Trans.*, 1775. *Rudolphi Abhand der K. Akad. zu Berlin*, 1820) on each side. These are all derived from the inferior or motor roots of the spinal nerves; none being supplied by the lateral nerve, or combined branch of the fifth and eighth. The spinal cord exhibits no peculiar development, nor indication of the existence in it of a series of electrical nervous centres; but Valentin (*Wagner's Handwörterb. loc-cit.*, 1842) has described a great lobe springing from each side of the brain between the peduncle of the cerebellum and the mesocephalon, extending upwards and forwards with its fellow of the opposite side, like an anterior or supplementary cerebellum. These lobes, according to Valentin, exhibit no trace of the large characteristic nucleated cells which exist in the electrical lobes of Torpedo. Whether the electrical lobes in Gymnotus be peculiar developments of the cerebellum, or of the grey matter at the cerebral extremities of the motor columns of the spinal cord, they present a highly interesting arrangement.

The presumed deep electrical layer of Malapterurus, which is merely a fatty mass, is supplied by branches of the spinal nerves; but the true electrical organs or batteries are supplied, the one on each side, by a longitudinal nerve, accompanied by an artery and vein, which pass along on their mesial aspects. This nerve was formerly considered to be a branch of the eighth pair; but Pacini (*Sopra l' organo elettrico del Siluro elettrico del Nilo.* 1846) describes it as derived from the first spinal nerve. Ecker has more recently stated (*Siebold and Kölliker's Zeitschrift. Jul.*, 1854), that, according to Bilharz, "the electrical nerve on each side appears to be a new element intercalated between the third and fourth spinal nerves." From the same communication it appears that Bilharz has found the trunk of the electrical nerve of the Nilotic Malapterurus, to consist not of a bundle of ultimate filaments, but of one such filament only, one-fourth of a line in diameter, surrounded by three fibrous sheaths, so as to present an entire thickness of one line. From this remarkable structure, Ecker has suggested to Bilharz further observations to determine whether the nervous centre of the electrical apparatus in this fish may not be a colossal unipolar nerve cell. From the peculiar structure of the trunk of the nerve, it is also evident that its branches and twigs of distribution must be subdivisions of the original single filament; in this respect resembling the subdivisions of the ultimate filaments in Torpedo, as observed by Wagner.

The presumed electrical organs in the tail of the skate are supplied by numerous nervous twigs, derived from the ventral or motor roots of the spinal nerves of the corresponding portion of the tail. These are distributed, as already stated, on the anterior faces of the disks, and do not exhibit at their spinal extremities any appreciable central development.

Mr Goodsir here stated, as introductory to the examination of the physiologico-electrical principles of the apparatus, that physiologists admit, as a general fact, the disturbance of the electric equilibrium in the processes of the living organized body. In vegetables this development of electricity is remarkable. In animals the discovery of Galvani, and the researches of Matteucci, and more particularly of Du Bois Reymond on the electro-motor phenomena of muscle and nerve, prove that in these structures, currents take place, the result of nutritive process, as well as of functional action; and the observations of Mr Baxter (*Phil. Trans.*, 1848-52. *Proceedings of Royal Soc.*, 1855), have determined the existence of electrical currents manifested during secretion and respiration. There can be no doubt whatever, that in every living organism more or less numerous and powerful electric disturbances are produced by its organic processes; and that its general electric equilibrium is provided for by the resulting currents in the organism itself, and in the medium in which it lives. The problem which the physiologist has to solve, in attempting to explain the mode of action of the electrical apparatus in the fish, may be therefore thus briefly stated: What are the anatomical conditions, and the vital actions (meaning by vital all the actions of whatever kind, performed by the living structure) essential to the production of a sensible current of electricity, such as is produced by the apparatus in question?

Here it becomes necessary to review the more important successive opinions which have been taken of the electric property of the apparatus. Walsh (*Phil. Trans.* 1773), concluded that the electricity of the Torpedo resides in the electric organs; that their upper and under surfaces are capable, from a state of electric equilibrium, of being instantly thrown, *by a mere energy*, into a *plus* and *minus* state, like that of a charged phial; and that the current results from a conducting medium between their opposite surfaces being supplied, naturally by the medium in which the animal lives, or artificially. The dependence of the electro-motor energy of the apparatus on the nervous centre, has been more distinctly stated by Matteucci (*Biblioth. Univ.* XII.), and Dr John Davy (*Phil. Trans.*, 1834), the batteries being therefore viewed as analogous to Leyden jars, or an inductive apparatus. Rudolphi (*loc. cit.*), considered the perpendicular prisms in Torpedo as galvanic piles, the horizontal series in Gymnotus as trough arrangements; but without entering into the details of the comparison. This view of their action does not explain the intermittent and voluntary character of the discharges. For, as Valentin (*loc. cit.*), has stated, the organs in the fish cannot be complete galvanic batteries, or they would be continually charged, and a discharge would follow every suitable closure of the circuit. Valentin (*loc. cit.*) proposes the following theory of the apparatus, based on Moser's (*Dove and Moser's Repertorium der Physik.* 1837), hypothesis of the action of the fluid of the cells of the battery on the substance of the nerves contained in it. He assumes the structure of the battery to be a series of closed spaces; the series enveloped in thicker, the spaces separated by thinner aponeurotic laminæ; each space being lined by a vascular epithelium, under which the nervous plexuses lie; and filled with fluid. He supposes that there results from the organic or nutritive reactions of the circulating blood, the epithelium, and the contained fluid of each space a certain amount of electric force, not, however, sufficient to overcome the insulating obstacle opposed to it in the aponeurotic walls: all the spaces in the battery are, therefore, so far only insulated electrical spaces. As soon, however, as the will of the animal determines a flow of nervous force into the spaces, the organic reactions become so much exalted, that the resolved electric force overcomes the insulating power of the laminæ, and a current is produced; the current being confined to the series by their thicker aponeurotic walls. This theory, although it may account for a sudden increase of electricity in the organ, affords no explanation of its progressive character—the current is not accounted for.

The theory which most satisfactorily combines the anatomico-physiological as well as the electrical phenomena of the apparatus, is that lately propounded by Professor Pacini of Florence (*Sulla struttura intima dell organo elettrico del Gymnoto, e di altri pesci elettrici.* 1852). Having discovered the important anatomical fact, that the nerves are distributed on one surface only of the electrical elements of the battery; while the vessels and nucleated cellular texture occupy the other; he finds in these structural peculiarities the condition wanting in Valentin's theory—an explanation of the progression of the electricity—the current. Pacini refers the electrical batteries in the fish to two forms of structure, and two modes of action; of the first and simplest form the Torpedo affords the type, of the second and more complicated, the Gymnotus. The batteries of Malapterurus are probably referable to the

Torpedinal type, those of Raia certainly to that of Gymnotus. In the Torpedinal type of battery, according to Pacini, the action is analogous to that which takes place in a thermo-electric pile, inasmuch as he conceives it to depend upon a dynamical difference, a certain different condition, in the two surfaces of each diaphragm of this *binary type* of pile. The nerve surface and the vasculo-cellular surface of a Torpedinal diaphragm correspond to the bismuth and copper, or bismuth and antimony elements of a thermo-electric arrangement; the nervous influence in the former taking the place of the heat applied in the latter. There is here assumed, what on other grounds is highly probable, that the electrical and nervous forces are correlative; and here it must be admitted that in Torpedo, as pointed out by John Hunter (*Phil. Trans.* 1773), the bulk of the nerves in relation to the batteries, is much greater than in Gymnotus, which exemplifies Pacini's second or *ternary type* of animal battery. When the Torpedo, therefore, wills a shock, or when, through the reflex action of its electrical nervous centre, a shock is induced, a sudden and copious nervous influx flowing over the under surfaces of its electric diaphragms, the upper surfaces are thrown into an opposite electrical condition, and a current is the consequence.

Pacini refers the structure of the battery in Gymnotus to a *ternary type;* consisting of a negative element—the fibrous layer on which the nerves ramify, together with the fluid which it bounds below; a positive element—the ridged vasculo-cellular layer; and a conducting element, the interdiaphragmatic fluid. The vasculo-cellular layer predominating in this ternary type over the nervous, Pacini conceives the electricity to be evolved in the organic actions of the vasculo-cellular layer under the influence of the nerves. In other words, the will of the Gymnotus, or the reflex action of its electrical nervous centre, directs an influence along the nerves of its batteries over the fibro-nervous layer; which suddenly exciting the nutritive or other organic actions of the highly developed vasculo-cellular layer, an electrical disturbance is produced; with an opposite electrical condition of the fibro-nervous and vasculo-cellular layers of the diaphragms, and consequently a current through the series. Pacini compares the wide-meshed fibrous layer, on the under surface of which the nerves ramify, to the hollow cylinder of porous clay, which in a Bunson's or Grove's galvanic arrangement separates the negative from the positive elements.

The lecturer now proceeded to consider very shortly the manner in which the animal avails itself of the electrical currents which it has the power of exciting. Without alluding to the numerous experiments which have been made on the Torpedo in air, he confined himself to the mode in which the Torpedo and Gymnotus use their currents as means of offence and defence in their proper aqueous medium. In the first place, it is evident that in water, the currents between the opposite surfaces of Torpedo, or between the ends of Gymnotus, instead of being confined to a transverse area of limited extent, as when they pass along a wire during a discharge in air; must be diffused through a considerable extent of the water surrounding the fish. The entire current force of the batteries must, in fact, be subdivided into numerous subordinate axes of force arranged in lines which come round the margins of Torpedo from back to belly, and along the sides of Gymnotus from head to tail. It is evident, therefore, that another fish placed so that its antero-posterior axis is in the line of inductive action in the water, will be affected less powerfully by the circulating electric power, than if it were placed across these lines. Mr Faraday (*Phil. Trans.* 1839) found that although the Gymnotus can stun and kill fishes which are in various positions in relation to its own body, it can, moreover, by throwing itself so as to form a coil enclosing the fish, the latter representing a diameter across it, so concentrate its currents of one side as to strike it motionless as if by lightning. The Torpedo would also appear, from the observations of Dr Davy, instinctively to elevate or arrange its margin so as to adjust the direction of its currents to the position of the object through which it wishes to pass them. "Thus," as Mr Faraday observes, "the very conducting power which the water has; that which it gives to the moistened skin of the fish or animal to be struck; the extent of surface by which the fish and water conducting the charge to it are in contact; all conduce to favour and increase the shock upon the doomed animal." (*Phil. Trans.* 1839.) Here, it is to be noted, that one of the chief difficulties in explaining the operation of the electrical apparatus in the fish, has been the necessity of admitting a certain amount of insulating property in certain of the textures composing and surrounding it; and in conceiving the apparatus acting at all in a medium which conducts so freely as water. The apparatus in fact owes its efficiency in such a medium to its peculiar combination of *quantity* and *intensity*. The battery of the fish, in relation to its final purpose, is a perfect instrument; yet, from another point of view, and in one sense, when compared with an artificial electrical apparatus, it is imperfect. It is necessarily most insufficiently insulated, and there is, therefore, an enormous loss of electricity; but the quantity produced is comparatively so enormous, that enough remains to form an efficient circuit. It is, in fact, a remarkable example of the munificent power, and perfect freedom of action, in combination with strict adhesion to law, which distingnish the work of the Creator in the formation and economy of organized beings; and it is only to be imitated in the most imperfect manner by human ingenuity.

The lecturer concluded by the statement, that the presumed correlation of the nervous and electrical forces in no way trenches on the psychical department of Physiology, and has no tendency to exclude the psychical or proper vital element from the science of organization. The Physiology of Man, at all events, can only be successfully studied and prosecuted by approaching it from two opposite poles. From the one, we approach its somatic department through Anatomy, Chemistry, and Physics; by the kind of evidence and method of research common to all such sciences. From the other, guided by an evidence and method totally different in kind, we enter on its intellectual and moral departments through Philosophy and Revelation.[1]

BIOGRAPHICAL SKETCH OF THE LATE DR JOHNSTON OF BERWICK.

George Johnston was born on the 20th of July 1797, at Simprin, in Berwickshire, where his father was the tenant of an extensive farm. Soon after his birth, the family removed to Ilderton, in the adjoining county of Northumberland, and there the subject of this notice, who was the tenth in a family of fifteen children, spent his earliest years. Of these years we know little; but we have heard from one of his near relatives, that when the rest of the children were engaged in play, George would often take up a quiet position in some retired corner of the garden, with his book, to pursue his reading undisturbed. He went to school for a short time at Kelso, and for a longer period at Berwick, under Mr Guy Gardiner, a teacher of some celebrity, who died only a few months ago. His acquirements in classical learning seem, however, not to have been very extensive; and, in after years, his occasional false quantities, when he ventured on a Latin quotation, were the subject of many a good-humoured jest. From the Berwick Grammar School he proceeded to the University of Edinburgh, enjoying while resident in that city the rare advantage of living in the family of the late Rev. Dr M'Crie, who was a distant relative of his own. On his selecting medicine as his future profession, he was apprenticed to Dr Abercrombie, under whose kind and most able supervision he prosecuted his professional studies. Of his habits at this period of his life we have received the following sketch from his friend the present Dr M'Crie:—

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[1] This lecture and the first lecture on the same subject, reported in the last number of this journal, were illustrated by a selection from the very complete series of preparations of electrical organs in the Comparative Anatomy series in the Museum of the University.

"We lived long together; and nothing struck me more at that early period of his life than the steadiness and zeal with which he prosecuted his studies. * * * Even then I augured from the conscientiousness with which he made himself master not only of his profession, but of all the branches connected with it, that he was sure to rise to eminence in after life."

During these student years he joined the Royal Medical Society, to whose pleasant and instructive meetings he ever afterwards referred with satisfaction. But, while he was far from undervaluing the information which he derived from the prelections of the various eminent men who then occupied the medical chairs of the University, he always in after life ascribed the largest share of benefit to the more private instructions of his kind friend and master, and the opportunities he enjoyed, first of witnessing, and then engaging in practice under his eye. With such an instructor his studies made pleasant progress, and in 1817 he obtained the diploma of the College of Surgeons. After this he spent some time in London, where he studied under Joshua Brookes, and thereafter established himself in practice at Belford in Northumberland. Here, however, he remained only a short time; for in 1818 he removed to Berwick-on-Tweed, with which town his name is now permanently associated. The following year he returned for a short time to Edinburgh, for the purpose of obtaining his degree of M.D., his thesis being *De Hydrope;* and in 1824 he became a fellow of the College of Surgeons, his inaugural dissertation being on the subject of Cancer.

His practice in Berwick and its vicinity soon became considerable, and steadily increased till the time of his death, when it was the largest of any in the district; but still too much leisure time remained for such an active mind to leave unoccupied, and he speedily began to turn it to account by investigating the natural productions of the neighbourhood. Such was his own statement as contained in the preface to his earliest work, *The Flora of Berwick,* published, the first volume in 1829, and the second in 1831. This is no mere catalogue of species; for, besides a large amount of collateral information regarding individual plants, the Acotyledons, generally so neglected in local Floras, were carefully described and enumerated, and the work was noticed in laudatory terms by the scientific journals. In connection with this book we cannot refrain, even at the risk of being thought to invade the privacy of the domestic circle, from mentioning an anecdote highly illustrative of Dr Johnston's kindness of heart, and desire to foster in others a love of that science from which he derived so much pure pleasure. Soon after the *Flora* was published, he wrote to a friend in Edinburgh to say that if he knew any young botanist, who would send him twenty plants not named in the *Flora of Berwick,* he would give him a copy of the book. This offer reached the ears of a boy at the High School, who had acquired a taste for botany, and had cultivated it with some success. He sent more than the twenty plants to Dr Johnston, and soon received the promised copy of the book, along with a letter containing some remarks on the plants sent. This led to a correspondence, which terminated in an invitation to the youthful botanist to spend a few days at Berwick with the author of the *Flora.* This visit was the commencement of a friendship which his death alone terminated,—the young naturalist of the High School ultimately becoming the son-in-law of the kind-hearted donor of the copy of the *Flora of Berwick.*

At this time, too, he had begun an examination of the more obscure marine invertebrate animals inhabiting Berwick Bay, and the results of these researches appeared from time to time in *Loudon's Magazine of Natural History,* with illustrations from the pencil of Mrs Johnston, which indeed added much to the value of all his works. These papers did not fail to attract the attention of naturalists, and drew forth the hope, from one well qualified to appreciate them—Mr Swainson—that this investigation might be carried on by Dr Johnston, as "the only naturalist in this country who has devoted himself to the study of the mollusca, and from whose talents, experience, and zeal we may expect so much." But no department either of zoology or botany was neglected by him, and though chiefly conversant with those classes which observers generally neglect, he added something to the existing knowledge of nearly all; and his name and authority will thus be found quoted in the standard works of Yarrell, Forbes, and others. In 1838 appeared his *History of British Zoophytes,* —the first book on that subject since 1755, the date of Ellis's *History of Corallines;* and so well did it succeed in drawing attention to these interesting and beautiful creatures, that when a second edition was called for in 1847, a very large number of new species had been added, by the investigations of those whom he had excited to their study. The History of British Zoophytes was followed in 1842 by that of the British Sponges and Corallines, which may be regarded as a supplement to the former—a history which he professedly undertook because no one else was likely to bestow attention on productions so devoid of interest. In 1850, he published the Introduction to Conchology, in which shell-fish, their works and ways, were delineated in such a pleasing and graphic manner, that it was characterised by Edward Forbes as one of the most delightful additions to the literature of natural history that had appeared for many years, and as doing for the molluscous animals what Kirby and Spence's *Introduction to Entomology* had done for the articulate tribes. It has since been translated into German by Professor Bronn of Heidelberg. Lastly, in 1853, appeared the first, and, alas! the only volume of the Natural History of the Eastern Borders. This comprised the botanical division of the book, the zoological being intended for the second; and being his favourite book, often playfully referred to in his letters as his *opus magnum,* it affords to those who did not know him personally, the most correct idea of the man. In addition to those distinct works, he published numerous detached papers, chiefly in the *Annals of Natural History* (of which he was one of the editors), and in the *Transactions of the Berwickshire Naturalists' Club,* which he originated, and which has been the parent of many similar local associations of naturalists. At the time of his death he was engaged on a descriptive catalogue of the British Annelides, which no one was so competent to execute; and it is satisfactory to know that the work is in such a state of forwardness that his labours will not be lost.

By his published works he not only became well known as a naturalist, but acquired the friendship and esteem of a large number of zoologists and botanists, both at home and abroad, an advantage which he turned to account by instigating the formation of the Ray Society, which has done good service in publishing scientific works, otherwise inaccessible. He worthily obtained the scientific honour, often too easily awarded, of having his name connected with newly described species, both of plants and animals.[1] He was elected an honorary or corresponding member of most of the societies in Britain, instituted for the promotion of natural history; and he attained the honorary degree of LL.D. from the University of Aberdeen.

Such a scientific career would have done no discredit to a man of leisure. But leisure, in the sense of want of occupation, was a thing unknown to Dr Johnston. He was, let it be remembered, all the while engaged in an extensive medical practice, and yet, amidst all his professional and scientific work he managed to find time which he could devote to the public good. He took an active share in the management of the municipal and educational institutions of the place of his residence. He was thrice Mayor, and for many years

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[1] In the July Number of the *Annals of Natural History,* a species of *Othonia,* a genus which Dr J. first described, is dedicated to him by Mr Gosse *O. Johnstoni.* "I have named this species after Dr George Johnston, who may be called the father of our marine invertebrate zoology."

Alderman of Berwick, and with such success and spirit did he discharge his public duties, that on the occasion during his mayoralty of the Highland Society's Show being held at Berwick, his fellow-citizens presented him with a piece of plate, in acknowledgement of the credit which he had brought upon the town, by the arrangements which he had made for the reception of their agricultural visitors. One cannot but admire the energy which could effect so much amidst so many distractions, and the following noble passage derives additional interest, and an additional illustration, from its being unconsciously a sketch by his own pen of his own life. "How largely natural science has been indebted for its progress to this body (the medical profession) is too notorious to be insisted on; but it has been less noticed that the men who thus occupied themselves in acquiring and forwarding a knowledge which many may deem purely ornamental, were the same individuals who were most engaged in the active discharge of the duties of their profession, and the most instrumental in its advance. Boerhaave, Cullen, Hunter, Darwin, and Jenner, are very memorable instances of this fact, which is illustrated with lesser brilliancy in Lister, Sloane, Mead, Fothergill, Lettsom, Sims, Maton; in Withering of Birmingham, in Perceval and Hull of Manchester, in Pulteney of Dorset, Stokes of Chesterfield, and numerous others, whose names will occur to every one conversant with the history of medicine. This is only what, on reflection might have been anticipated, for that very activity of mind and perspicacity which originated and upheld their sagacity and success as practitioners, were sure to carry them far in whatever side-path the natural bent of their taste led them, for the occupation and entertainment of the leisure hours which the busiest must have or may create. Idleness has no leisure. Were it necessary I might safely shelter myself under the cover of these exemplars, in the contemplation of whose lives I have often nurtured my love to my profession, and hence, perhaps, an ambition to follow them even at a far distance; but there never was a time when it was necessary to vindicate to any but the ignorant, the erratic excursions of medical men into the fields of science and literature, for assuredly the rank which the profession as a body has taken and holds in public estimation, depends for its patent, in part at least, on the scientific and literary character of its professors; and by continuing to support that character, they will best secure it from the vulgarity of a common mercature, or the selfishness of a venal quackery."—*Hist. of Brit. Zoophytes, preface*, p. vii.

We have said so much of Dr Johnston as a naturalist, that we have left ourselves little space to speak of him as a physician. In this character we are disposed to give him a high rank—a rank which was indeed acknowledged by the frequency with which his advice was sought in consultation by his brethren in the neighbourhood. His practice was generally simple, seldom heroic; and though appreciating, and, when needful, making use of, any new appliances and means in medicine, he delighted to follow, and to hold up as examples, many of the physicians of olden times. His endeavour was to be truly *naturae minister et interpres*, and to interfere with her operations as little as possible. This led him to pay minute attention to the diet and regimen of his patients, and to the light and air of the sick-room; and the solicitude with which he would often give careful directions as to the preparation of some article of food, while it showed what importance he attached to such points, at the same time impressed the sick with his kind and sympathizing nature. This indeed was the charm of his character as a medical attendant. It has been truly said by one who knew him well, that he never entered a house as a physician without leaving it as a friend. His visits were longed for and welcomed by old and young, by rich and poor; and many a weary sick-bed, where medicine could do little or nothing, was cheered and soothed by his kind words and even kinder countenance. And so it is, that while many who never saw him are now regretting the loss of a skilful and accomplished naturalist, all who ever experienced his care mourn the loss of a personal friend. For nearly thirty-seven years he acted as one of the medical officers of the Berwick Dispensary, and even when the science he loved so well seemed to demand all the leisure that could be spared from his private practice, he never grudged the time which these gratuitous labours required.

We have made no attempt to draw a character of Dr Johnston, and have said nothing of the rich store of information, and the genial, kindly humour, which made him such a delightful companion and correspondent. His antiquarian tastes, ever and anon dragging into service some scrap of tradition or some fairy legend,—his anxiety to do full justice to even the humblest of his fellow-workers in science,—his love for the objects of his studies leading him to dilate on their beauties which are hidden from ordinary eyes, and the delight he took in tracing every mark of design in their structure up to the hand of an all-wise Creator and Preserver,—these may be seen in every one of his published works, and will be recalled by all who ever enjoyed his society. But to those who knew him not, we feel how impossible it is to convey a conception of that truly *loveable* character who has so lately passed from amongst us.

Dr Johnston usually enjoyed good health, and his active habits and alert and vigorous step seemed to promise a long career of usefulness. For more than a year, however, before his last illness, he was troubled by various apparently unconnected morbid symptoms, which led him more than once to seek the advice of medical friends in Edinburgh. Still he was not laid aside from his ordinary occupations till the latter end of June, although an almost constant headache, accompanied by somnolence aud confusion of thought, gave warning of the coming evil. He was not, even then, willing to believe that his ailments were at all serious; or perhaps the unwonted apathy with regard to other things which he began to show, had extended also to his own health. On the 28th of June he once more journeyed to Edinburgh, when his complaints did not appear to his kind professional friends to require more than the quiet and repose afforded by a temporary residence at the Bridge of Allan. A deceptive alleviation of his symptoms on his arrival there seemed at first to confirm this opinion; but on the 7th of July he was attacked by hemiplegia. When visited two days later by his old and attached friend, Mr Embleton, and by Dr Douglas Maclagan, an immediate return home was advised, and accordingly he was brought to Berwick on the 11th. It would be needless, and indeed painful, to detail the history of his illness. The symptoms of organic cerebral disease manifested themselves more distinctly, the mind gradually became a complete blank, coma supervened, and on the morning of the 30th of July he quietly expired, having little more than completed his 58th year. From the time of his return home, the sympathy felt and expressed by all classes of his fellow-townsmen was universal, and on the day of his funeral every place of business was closed, while a long train of mourners, headed by all the medical men of the town, and the Magistrates and Council, followed his remains to their last resting-place.

OPENING OF AN INSTITUTION FOR THE TREATMENT OF IDIOCY IN EDINBURGH.

Hitherto only one institution has existed in Scotland for the treatment and training of imbecile and idiot children; that, namely, which was founded two years ago by Sir John and Lady Jane Ogilvy, at Baldovan, near Dundee. It is with pleasure we announce that another is nearly ready for opening in Edinburgh.

So much of the hoped-for success must depend upon the careful adaptation of the physical treatment to the circumstances of each case, that it appears essential to the efficient working of such institutions that they be superintended, if not conducted, by well-qualified medical men. We are, therefore, happy to learn that the Edinburgh School will have the aid of Drs John Smith and Coldstream, as physicians; while the immediate management and superintendance will be in the hands of Dr David Brodie. It will be, we trust, the care of these gentlemen to establish a psychical sanatarium for the young, worthy of the metropolis of Scotland, and of the Medical School of Edinburgh.

It is, indeed, rather a humiliating consideration that, whereas it was in Edinburgh that the first institution that ever existed for the education of the deaf and dumb, was established (in 1760 by Mr Thomas Braidwood), we have been so tardy in commencing operations for the benefit of a section of society so long neglected, but so much in need of such aid as science can give, and this notwithstanding the encouraging results reported as having been obtained elsewhere. Our dilatoriness in this matter is all the more remarkable, seeing that it was in Edinburgh that the first earnest appeal on behalf of the neglected idiot was published, and that so long ago as in 1819. In his interesting Essay on Education, which first appeared in that year, as an article in the *Encyclopædia Edinensis*, and subsequently (in 1825) as a separate treatise, Dr Richard Poole thus wrote :—"It is obvious that there is ground for employing medical advice in cases of general imbecility presenting in early life; and there cannot be a doubt that cases of this kind, which are allowed by despair to become confirmed and deteriorated, might have been relieved by professional interference." The correctness of the principles on which Dr Poole ventured to found so strong an asseveration, has latterly been fully proved by the experience obtained in several institutions established for the treatment of congenital idiocy; the general result being, that, under suitable means, almost all are improveable; and that "for three-fourths of the children treated, much may be done to rouse intelligence, and even to fit for usefulness."

This unlooked for result has stimulated some of the European governments, and several benevolent individuals in different countries, to exert themselves on behalf of the poor idiot. The existing institutions at Redhill and Highgate, near London, at Colchester and at Bath, are probably known to most of our readers; also the schools for adult idiots at Hanwell in England, and Bicètre at Paris (not to speak of the world-renowned hospice of the Abendberg, conducted by Dr Guggenbühl, whose success in treating cretinism has gone far to excite a general interest in this subject); but it is perhaps not so generally known, that some distinguished members of the medical profession in Denmark, Prussia, Saxony and Wurtemberg, have, more or less recently, devoted themselves to the forwarding of this good work in various ways. For example, in Copenhagen, the learned Professor of Physiology in the University, Dr Eschricht, published last year an interesting treatise "On the Possibility of Educating Idiotic Children to become useful Members of Society." In the same city, Dr Hybertz has published an elaborate statistical inquiry into the extent to which idiocy prevails in the various countries of Europe, and has also devoted himself to the treatment of a certain number of children affected with it. Still, in the Danish capital, M. Moldenhawer has commenced a work of the same kind; while, in Schleswig, Dr Hansen is similarly employed. Dr Sägert of Berlin, Director of the Royal Institution for the Deaf and Dumb in that city, has written much and well on the treatment of idiocy, and has, for several years laboured personally in training imbecile children. At Bendorf, near Coblenz, Dr Erlenmeyer has a small establishment of the same kind. In Saxony, Dr Kern at Leipsic, and Dr Gläsche at Hubertsburg, near Dresden; in Wurtemberg, Dr Müller at Winterbach, and Dr Zimmer at Mariaberg—are all in charge of institutions for treating idiocy, varying in extent.[1] In the same way the work is extending in the United States of America. There are now, we believe, at least four establishments (one in each of the States of Massachusetts, New York, Pennsylvania, and Virginia), supported at the public expense, besides private ones. The reports of that at Boston, published by Dr Howe, are of great interest and value.

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[1] If to this list be added the establishments of Pastor Frobst at Exberg in Bavaria, and of Pastor Bost at Laforce (Dordogne) in France, we have a tolerably complete enumeration of the institutions for the benefit of idiotic children, now existing in Europe.

A proof of the zeal in this good cause which exists in Denmark has lately been shown in the mission of a gentleman, in all respects well qualified, charged by the Government of that country to visit, and report upon, all the institutions for the cure of idiocy in Europe. This commissioner (Mr John Moldenhawer, who published last year an account of the German establishments), after having visited the English schools, came to Edinburgh in expectation of seeing something worthy of his attention, and was disappointed. Dundee alone, in all Scotland, could furnish him with the material for his report.

The subject of the treatment of idiocy lately engaged the attention of the Academy of Medicine at Paris; a paper on it having been read before that body, in July last, by M. Delasiauve, physician in charge of the epileptics and idiots at Bicêtre. This author homologates the axiom of Voisin, regarding the object of the education of the idiot,—namely, *to develop what already exists.* He announces a classification of idiots with reference to their various degrees of aptitude for education, and suggests some improvements, both of a general and of a special kind, which he thinks ought to be introduced into establishments devoted to the cure of idiocy.

The above narration will serve to prove how earnestly our brethren in other lands are endeavouring to carry into practical operation the idea of its being possible to rescue the poor idiot from that hopeless degradation and neglect to which he has hitherto been consigned. Let us now, although late, do what we can to emulate the good example thus set us.

To return to our projected Edinburgh Institution, we have further to state, that, as it is desirable to make it self-supporting, the lowest rate of board to be charged will be forty-five pounds *per annum;* and for the first-class accommodation, the charge will be seventy-five pounds. It is expected that the house (which is No. 10, Gayfield Square) will be ready for the reception of pupil-patients in the beginning of October.

The prospectus bears that,

"The Institution will receive a certain proportion of children and youth not affected with mental imperfection or peculiarity, but who are from bodily ailments or other causes, unable to take their place at ordinary schools. The combination which this Institution presents, of practical medical experience with efficient educational resources, will supply, it is hoped, a want which is much felt by the parents of children in the condition here referred to."

We cordially recommend this infant institution to the favourable regards and support of our readers.

PUBLICATIONS RECEIVED.

Researches on Colour Blindness. With Supplement and Appendix. By George Wilson, M.D., Regius Professor of Technology in the University of Edinburgh, etc.

On the Disorders of Infantile Development and Rickets. By A. Schoepf Merei, M.D., 8vo. London.

On Artificial Limbs. By Henry Bigg. With Engravings, 8vo. London.

The Stomach and its Difficulties. By Sir James Eyre, M.D., 8vo. 3d Edition. London.

On the Local Treatment of the Mucous Membrane of the Throat. By J. E. Riadore, M.D., F.R.C.S. London.

Letter on the Cholera Report. By Dr Ayre of Hull. London.

Dr Churchill on the Theory and Practice of Midwifery. 3d Edition. London.

The Mineral Waters of India. By John Macpherson, M.D. Calcutta.

On the Law of the Coroner. By James Craig, Esq. Ratho. Edinburgh.

Twenty-Eighth Annual Report of the Directors of Murray Royal Asylum, Perth.

Vaccination Bill. From the Epidemiological Society.

Outline of a Compulsory Vaccination Act. By Spencer Thomson, M.D.

Catalogue of the Contributions sent by British Guiana.

etc. etc. etc.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*Case of Imputed Murder by Manual Strangulation; with Observations.* By Charles Wilson, M.D., Fellow of the Royal College of Physicians, Edinburgh.

Instances of trial for imputed murder by manual strangulation are comparatively of such exceeding rarity in our courts, that, were it on no other ground, they must naturally be considered as involving a certain degree of interest. On the occasion which presents the subject-matter for the following observations, the verdict was one of acquittal; and we have hardly here, therefore, that distinctness of issue which constitutes a definite fact, the unchallengeable property of science. But with the special guilt or innocence of the particular individual accused, in any criminal prosecution, the medico-legal inquirer, it need scarcely be stated, has really no concern. It is his province merely to establish that a crime has been perpetrated; and to leave to the proper authorities the more painful duty of bringing it home to its perpetrator, and of convicting him at the bar. The charge is to him, in thus far, merely an abstraction, referring to an act of which he is to consider all the immediate circumstances, so as to give the most precise information possible as to the reality, and the manner, of its execution: but beyond the discharge of this important, often difficult, and always deeply responsible duty, his agency is wholly passive. To gather the array of proofs around the party accused, and connect the culprit with the crime, is a function which he gladly resigns to other hands.

In the following details, therefore, as in the original inquiry, nothing beyond the question, as thus limited, will be attempted; although we shall have incidentally an opportunity of judging, in how far such proofs as might have been deemed fitting to weigh with the medical inquirer, are likely to avail, in any future and similar case, in satisfying the scruples of a court of justice. It must always be interesting to observe, and in the investigation of a criminal charge the interest is momentous, to what extent the decisions of the investigator may be influenced through his mental habitudes, and the position from which he directs his scrutiny. The medical man, proceeding to his task upon a base-work of appropriate knowledge, to which he has been early trained, views all medico-legal questions with an eye habituated to the examination of natural phenomena, and an intellect practised and disciplined in studying their relations and in discriminating their causes. The lawyer, equally acute in intellect (and I do not see why we should admit more), but beyond measure less accustomed to the appreciation of natural facts, and proceeding upon a ground-work of knowledge substantially different, discusses what he has not actually seen, and what, if he had seen, he has not been instructed to estimate correctly, either through preliminary study or acquired experience. Looking at matters from points so essentially dissimilar, it can be no wonder that the same facts should be seen in different aspects by the different parties; and least of all a wonder, that by the lawyer they should be occasionally only partially perceived, imperfectly apprehended, and therefore misjudged or misapplied. It could not be without advantage, to consider more closely the kind of collisions which are thus prone to occur between judgments so diversely exercised; provided the inquiry were entered upon, not with the spirit which seeks a conquest over a somewhat domineering rival, compelled sometimes to dogmatize from the very force of its position, but with that more honest zeal which desires exclusively to establish the truth, and to render it subservient to the common welfare. Such a theme, however, is far too extensive to be consistent with my present object, though suggested by the consideration of it; yet it may perhaps be possible, in the course of my observations, to offer a hint here and there, in connection with it, which may serve, in some faint degree, as an elucidation, if not as a warning.

The facts, in the case before us, will be best presented, by transcribing the report of the autopsy made on the occasion, of which the following is the tenor:—

"On the afternoon of the ——— of ————, I proceeded to the cottage at —————, by desire of the Procurator Fiscal of the county of ————, in order to examine the body of ———————————, a woman who was reported to have died suddenly two days previously.

"I found the body deposited in a coffin, which was opened in my presence. The grave-clothes having been removed, the under shift, such as is usually worn by women, was observed to be extensively soiled with fæces, at its lower and back part. The deceased seemed to have been about thirty years of age; and the body was in no respect emaciated, but generally of a plump and healthy appearance.

"On proceeding to a more special examination, I remarked that both the ears, the whole of the right cheek, and the lower part of the neck, over the collar bones, were of a deeply-livid colour; lightest, however, on the neck. The whole of the back was also overspread with a paler lividity, such as is usually the result of gravitation of the blood in the dead body. The eyes presented a pale red suffusion. There was a contusion on the right side of the forehead, of a circular form, and about an inch in diameter. There was a yellowish-brown mark, hard and parchment-like, about an inch and a half in length, by half an inch in breadth, on the left side of the chin, running along the lower margin of the jaw: and another similar mark, of nearly equal dimensions, the skin feeling thickened, hard, and corrugated, passed transversely across the throat, immediately over the larynx. To the right of this mark, and on the same line with it, there was a smaller detached spot, of like appearance. The fingers were semi-contracted and rigid; and there were traces of blood which had flowed from the right nostril.

"On removing the integuments from the site of the oblong mark on the chin, there was observed a distinct extravasation of blood in the cellular tissue beneath; and there was also slight effusion under the bruise on the forehead. The skin on the front of the neck, and the superficial muscle (platysma myoides) having been reflected, the other muscles in the vicinity of the wind-pipe (sterno-hyoid, sterno-thyroid, and omo-hyoid), especially those portions contiguous to the larynx, and on the left side, were found of a much darker colour than natural, and darker than the adjacent muscles, as if their substance had been gorged with venous blood. There was an extravasation of blood into the substance of the left omo-hyoid muscle; a farther extravasation, lower down on the same side, between the jugular vein and the wind-pipe; also in the left sterno-mastoid muscle, near its origin; and in the cellular substance beneath the platysma myoides. On proceeding deeper, blood was also found effused over the cartilages of the larynx, still chiefly on the left side; the thyroid gland, on the same side was largely infiltrated; and the effusion here extended around and beneath, passing behind the wind-pipe and larynx to the gullet, so as to occupy a space, in the aggregate, of several square inches. A line of extravasated blood proceeded also, upwards and backwards, from the left side of the larynx to the angle of the lower jaw.

"On dividing the wind-pipe, it was found to contain a quantity of frothy mucus. In the interor of the larynx, there was a considerable extravasation of blood lying beneath the investing membrane, and passing up, on both sides and behind, as far as the chink of the glottis, or orifice by which the air is admitted into the wind-pipe; and, above that opening, into the ventricles of the larynx. There was here, also, a fracture of the right wing of the thyroid cartilage, by which its lower horn was wholly detached; and the cricoid cartilage was broken in two places, at opposite sides of its ring.

"The veins in the neck, both the smaller, and the larger ones communicating more directly with the heart, were everywhere turgid with blood, in an entirely fluid state.

"On proceeding to lay open the cavity of the chest, there was discovered a thin layer of extravasated blood, occupying a considerable space, lying below the left mamma and the greater pectoral muscle, and passing forwards to near the sternum. No mark of contusion corresponding to this could be discerned externally. Within the cavity of the chest itself, there was no mark of disease or injury observable; unless that the lungs, especially on the right side, appeared dark-coloured, and much congested with blood. There was no effusion within either the pleura or pericardium; and the heart, with its valves, was in a healthy condition.

"In the brain, there appeared to be a considerable congestion of the vessels ramifying on its surface: and, on cutting into its substance, the medullary part was found thickly studded with bloody points. There was neither fracture of the skull, nor appearance of extravasation of blood within, or upon the brain. The ventricles contained about three drachms of clear serum; and at least double that quantity was afterwards observed at the base of the skull.

"In the abdomen, the intestines were found considerably inflated, and generally congested, especially the stomach, jejunum and ilium; the latter presenting also occasional livid patches. The stomach contained about eight ounces of a gruel-like fluid. There was no effusion, or adhesion, or other morbid appearance discernible; unless that the liver appeared slightly enlarged, and, in parts, of a somewhat paler colour than natural. The urinary bladder was empty.

"From a review of these details, it seems impossible to resist the inference,[1] that death, in this instance, has been produced, in some way or other, through means of a violent compression or constriction of the throat: the condition of the larynx, and of the parts contiguous, evincing this directly; while the state of the system generally, and all other circumstances, appear fully consistent with such a conclusion. This I certify upon soul and conscience."

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[1] It may be worth noting, that it was objected in Court, in this case, that the medical evidence was merely inferential, and that the conclusion of the

The report, which I have thus presented, was farther sustained by the testimony of Mr Vost, surgeon; who kindly, at my request, had assisted at the *post-mortem* examination, and appended a separate attestation, expressing his concurrence in its details and conclusion.

In re-examining the details, the circumstance that the shift was found soiled with fæces, though considered worthy of notice, as authors have included evacuation of the fæces and urine among the tokens of death by strangulation or hanging,[1] was by no means regarded here as of material consequence; as it was much more probable, in this instance, that the evacuation had been caused at a later period than that of death, as frequently happens through the gaseous distension of the intestines. It is worth remarking, that while the livor of the ears, cheek, and neck is strictly compatible with the idea of death by asphyxia, the blood in the vessels remained so fluid also, especially in the face, that it was observed still to gravitate freely, as the position of the head was changed in the process of dissection. As the eyes were observed to be distinctly suffused, they might also have been termed somewhat protruded, a token which is frequently included among the signs of strangulation: but the eyes of some persons being naturally prominent, and having been unacquainted with the appearance of the individual during life, I did not consider myself justified in noting anything more precisely regarding them. There was no preternatural distortion of the lips, or protrusion of the tongue; but it is difficult here, on the other hand, to say how much of this might be owing to the cares of those who dressed and adjusted the corpse shortly after extinction, even were such indications of material value otherwise. The contusion on the forehead was evidently quite recent, as evinced by its colour. It was tumified, had a nodulated feeling, was accompanied by effusion of blood into the tissues beneath, and had therefore been inflicted during life.

The yellowish-brown marks, like dense, dark-coloured parchment, slightly moistened, which were found on the side of the chin, and the front of the neck, constituted appearances of especial interest and importance. They were similar to each other, and different from any common appearance of abrasion or contusion. As the former was not in a situation where it was likely to have been produced by constriction with a cord, it naturally suggested the idea of

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report was only an "inference." How could it be otherwise? "He who infers," says Whately (*Elements of Logic*, p. 295), "proves, and he who proves, infers:" and, afterwards, "to infer, then, is the business of the philosopher; to prove, of the advocate."

[1] Devergie, *Annales d'Hygiène*, T. III., 1855, p. 460.

the application of compression by means of some other hard and resisting substance. That over the larynx, from the known usual cause of its presence in that locality, arrested more particularly the attention. It was as if the different layers of the skin had been firmly impacted into each other, by a heavy and prolonged pressure; and there was an appearance of the surface being corrugated into fine lines, strait and parallel with each other, and in the direction of the mark, which was not oblique, but directly transverse across the throat. These lines, which were unaccompanied by an abrasion of the cuticle, and which were wanting in the mark upon the chin, gave the idea of a compression having been effected, not by a round or twisted cord, but by some flatter ligature of moderate breadth, as a garter, ribband, or small kerchief; while the great injury to the larynx, and the extensive infiltration and extravasation of blood which had made its way under the cervical fascia, and elsewhere, seemed to imply, in addition to this, the instrumentality of a different description of pressure, as by manual grasping of the throat. The semi-contracted, and rigid state of the fingers, and the traces of hæmorrhage in the right nostril, the blood in which appeared to have been coagulated, as if it had escaped during life, and had not been exuded during incipient putrefaction, were also facts which gathered themselves round the idea of a death produced by strangulation, effected by violence. The hair was dishevelled, but possibly not more than might have been expected from the alleged drunken habits of the woman. On the other hand, it is proper to remark, that there were no scratches on the hands, wrists, or other places, as if from struggling or resistance. There were slight abrasions on each elbow, which were not included in the report, as they were very trifling, and evidently of several days standing prior to death. With this exception, the whole of the other injuries appeared to be contemporaneous. As no mark of contusion was observed on the left side of the chest, externally, while the extravasation of blood beneath presented no central spot in which it existed in chief abundance, and from which it had spread to the parts adjacent, as was likely to have followed the direct impingement of a blow; and as, on the contrary, the blood was equably diffused, in a thin layer, over a space of several square inches, it seemed to suggest the probability of the injury, thus revealed by no outward token, having been caused by the weighty pressure of the tissues against the ribs by some broad and flat surface. The condition of the lungs, like the other appearances, in the brain and elsewhere, was consistent with the idea of death by asphyxia. The livid patches on the ilium were doubtless the result of cadaverous transudation: and the state of the liver denoted the commencement of those organic changes which so usually attend the vice of intemperance.

The examination had, thus far, manifestly disclosed the occurrence of a death by asphyxia, accompanied by extensive injury of the larynx, and other marks of violence. As the body had not been found suspended, and there was no ligature, the question of suicide by hanging was set aside from the commencement; even if the nature of the injuries had been otherwise wholly compatible with the supposition of this description of death. A fatal result from accidental hanging, during foolish attempts at imitation or experiment, as has been known to occur, was thus equally removed from the train of possibilities. Suicide, by strangulation, without suspension, though it have been occasionally remarkably exemplified, could not possibly be attended with such an amount of injury to the larynx, requiring such a degree and description of force for its accomplishment, as that which had been detected; and, besides, would have left some of the other tokens of violence unaccounted for. Accidental strangulation, a contingency to which experience has shown that it was reasonable to advert, was excluded by the same considerations. It remained, therefore, only to determine, whether the death could have been produced by a casualty of another description, or was unquestionably the result of some form of wilful outrage.

Fracture of the larynx, by a fall, or other ordinary description of injury or accident, is in itself so rare an occurrence, that it scarcely occupies a place in the common books on surgery; and, even when encountered there, it is usually indicated without the distinctness of individual experience. Dr Duncan, junior, records an example,[1] which, though not through strangulation, was at least wilfully inflicted. A woman was kicked by her husband in the throat: there was emphysema; and a light bluish mark was observed externally. There was here, therefore, not the characteristic impress of strangulation, but the ordinary livid mark, produced by a blow. Dr Duncan, who was well known to be one of the most learned physicians of his time, states that he is acquainted with no other instance of rupture of the larynx through external violence; and Mr Ryland, in his valuable treatise, cites the example with a similar remark.[2] The injury proved fatal; but the man escaped conviction through some flaw in the evidence. In the museum at Chatham is a larynx, showing comminuted fracture of the cricoid cartilage from the kick of a horse. The injury was also speedily followed by death.[3] A boy, riding on the lever of the gin of a coal-pit, and stretching out his neck, came into violent contact with his throat against a post. The trachea, here, was ruptured across, and he died in a few days.[4] There is a case reported by Mr Liston, which occurred in his own practice,[5] where the larynx of a child was injured by a fall on a stone. Tracheotomy was considered necessary; a quantity of fluid blood was removed from the trachea; and the child recovered. But we have here no evidence of any fracture: and it is probable that the injury was nothing more than the rupture of a blood-vessel in the mucous membrane, such as occurs so readily from a blow upon the nose; the greater danger arising from the peculiar seat of the hæmorrhage, and from the shock to the nerves distributed to the delicate and irritable organization of the larynx. Indeed, as no fracture is here actually mentioned, we may be assured that none had occurred: and this belief presses upon me the more confidently, from some experiments made by me on the elasticity of the cartilages of the larynx in young animals, which I have found to be relatively great; the texture bending, and resuming its natural form after the application of considerable force, though, of course, capable of being fractured, the thyroid cartilage the more easily, and the cricoid cartilage with the greater difficulty. It appears then, that in the few cases on record of ascertained accidental fracture of the larynx, the force applied has been very great, and that the result has been uniformly fatal; but in none of the instances does the injury appear to have produced sudden extinction, through an asphyxia the direct and immediate concomitant of the casualty.

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[1] *Edinburgh Medical and Surgical Journal*, Vol. XVIII., p. 412.

[2] *Diseases and Injuries of Larynx and Trachea*, p. 249.

[3] *Catalogue of Museum of Army Medical Department, Fort Pitt, Chatham*, p. 78. Liston's *Elements of Surgery*, p. 447.

[4] Dr Dunlop; quoted by Beck, *Medical Jurisprudence*, p. 718.

[5] *Edinburgh Medical and Surgical Journal*, Vol. XXX., p. 570.

The only accidental injury to which the woman was likely to have been subjected on this occasion, moving about within her own dwelling, must have been by a fall upon some projecting object. It is unnecessary to ask if a fracture of the larynx, thus effected, could be regarded as a probable contingency: because we have seen that the lesion is in itself of the rarest description, from whatever cause; while, as the manifest result of a fall, it is to be found nowhere in any ordinary record. It was, therefore, to the barest possibility of its occurrence, that the question became restricted. In cases of this kind, it is impossible, without risk of flagrant error, to view the various injuries of apparently contemporaneous occurrence, and still less the component parts of any individual injury, otherwise than in strict relation to each other. It is the frequent policy of a defence, in a court of justice, to inveigle the medical witness into a course the opposite of this: and, where there has been a complication of lesions, he is enticed, and sometimes constrained, to speak of each separately, and to pronounce upon the possibilities of its individual mode of production, and its individual results, as if it were an abstraction, which could be viewed apart from the rest, and from the common circumstances of all. By this arbitrary elusion of the plainest rules of logic and common sense, the charge is broken up into fragments; and that is sometimes readily destroyed in detail, which would have been irrefragable as a whole. The proper reply of the witness to this mode of examination, is to declare that he cannot consent to consider, and to estimate, injuries and circumstances apart, which he found combined.

Thus reflecting, it seemed to me very difficult to imagine that a woman, with her rounded throat and slightly prominent larynx, should, on a horizontal surface, reel forward with such impetus in a drunken stumble, as, by the mere weight of her body, to rupture the cartilages of the larynx in three places. I found it still more difficult to imagine, that such an accident, so produced, could have farther caused so extensive an effusion of blood, and so dense an infiltration of the muscles and thyroid gland as that which was encountered: and the difficulty was not diminished by the presence of marks directly over the injured parts, identical with those so generally described as the result of the ligature in suspension or strangulation. It was not likely that the first impingement of the fall could have produced two separate marks of this peculiar character; and scarcely more likely that the weight of the head and shoulders, of a half reclining body, would produce prints so intense, and bearing such evident tokens of strong compression, even though the body had remained for some time in the position into which it had first fallen. Neither was compression upon any limited point calculated to produce such complete congestion of the head and throat as was found in this case, because in this way a partial obstruction only to the regress of the blood was likely to be effected. Apoplexy, in its simplest of congestive forms, without extravasation, may doubtless prove promptly, and even instantly fatal. Could it have been conceived that she had fallen in this state, or in the coma of intoxication, and could have so injured the larynx by that fall, the death which followed, and the manner of that death, would have been easy and natural consequences. But it seemed necessary here to admit also the lesser difficulty of several other distinct falls, producing the injury on the breast, on the chin, and on the forehead: because, had there been so many points of contact in a single fall, the force would have been broadly diffused, and would have been still less fitted to have produced such a concentration of violence as was discovered in the throat.

But, above all, it was to be kept in mind, that the question was here, not simply of certain injuries of the larynx and elsewhere, but of death by a rapid asphyxia, of which these injuries were the concomitants, and not, in any indispensable sense, the absolute or exclusive cause. Their presence, considered under this proper limit, merely denoted that the agency producing the asphyxia was one which had acted with excessive force. In cases of suicidal hanging, it is well ascertained that fracture of the larynx, even in its simplest form, is an event of extreme rarity: and even ecchymosis of the neck, whether in the cellular tissue or in the muscles, has been so seldom encountered in suicides, that Devergie and others regard its presence as affording, at least, a strong presumption of homicide.[1] Out of 101 cases of suicide, by suspension, Remer found the larynx fractured only once. Orfila,[2] on one occasion, saw a fracture of the os hyoides, with considerable ecchymosis of the splenius and complexus magnus muscles. But in criminal executions, on the contrary, where a great fall is intentionally secured, or where formerly the executioner threw the addition of his weight upon the culprit, the injury to the parts has been occasionally very considerable. Fracture of the larynx, thus effected, has been noticed by Morgagni,[1] who quotes also the authority of Valsalva and Weiss. Plouquet,[2] Orfila,[3] and a writer in the *British and Foreign Medical Review*,[4] refer to similar examples. Houston[5] speaks of a case in which the skin was alone unbroken, and interposed between the rope and the cavity of the pharynx. We have here evidently a very great momentum; and the injury, not unfrequently, although by no means universally, or even commonly, becomes what may be considered proportionate.

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[1] *Médecine Legale*, T. II., p. 752.

[2] *Traité de Médicine Légale* (Ed. IIIme), T. II., p. 425.

On the other hand, in homicidal throttling, or manual strangulation, where the perpetrator, to secure his purpose, uses, in his ignorance, a force far exceeding that slight compression which suffices to obstruct respiration, extensive lesions of the larynx are more uniformly produced. A wary adept at murder, and peculiarly exposed to detection, like the infamous Burke, proceeds to his crimes with greater caution. In one of this notorious group of cases, ably investigated by Dr Christison, a woman, killed by smothering, and pressure on the throat by the hand, had the scarf-skin under the chin much ruffled, and the surface of the true skin dry and brown where denuded, but without blood or surrounding ecchymosis; while there was no effusion of blood or laceration of the parts around the wind-pipe, and no injury of the cartilages.[6] But, fortunately, the practised skill of this description of ruffian is, at least in the native seat of our empire, a rare attribute of the homicide, and the most decided traces of exaggerated pressure usually remain to reveal the act of throttling. Pyl[7] cites a case of a female who had been strangled, in whom the cricoid cartilage was found broken in two places. Henke quotes the instance of an old woman, whom a thief, fearing detection, had grasped by the throat in the dark, so as forcibly to extinguish life; when brown spots and depressions were seen upon the neck, and the thyroid cartilage was found fractured.[8] Devergie reports a case of a female who had been strangled, with fracture of the hyoid bone and of both cartilages of the larynyx, and whose throat was cut by the assassin immediately afterwards. From the absence of traces of a ligature on the throat, the author infers that the throttling was accomplished by grasping exclusively; and he refers afterwards to the occurrence of such fractures, as establishing generally a presumption of homicide.[1] Watson[2] lays down a similar doctrine; and Taylor, perhaps with less than his habitual precision of language, speaks, not of fracture or rupture, but of cutting and laceration, of the cartilages, under like circumstances. In another passage, this judicious author describes the larynx as often extensively injured; and he cites afterwards an example in which the wind-pipe was lacerated longitudinally in its rings.[3]

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[1] *De sedibus et causis morborum*, Epist. XIX., Art. 12, 13, 14.

[2] *Literatura Medica Digesta*, Vol. IV., p. 114.

[3] *Dictionnaire de Médecine*, (Ire ed.) T. XIX., p. 545.

[4] Vol. II., p. 114.

[5] *Cyclopædia of Practical Medicine*, Vol. III., p. 331.

[6] *Edinburgh Medical and Surgical Journal*, Vol. XXXI., pp. 238, 239.

[7] *Aufsätze und Beobachtungen aus der gericht. Arzneiwissenschaft*, IIIte Sammlung., p. 52.

[8] *Lehrbuch der gerichtlichen Medicin*, (12te Aufl.) p. 311.

We thus gather, from these separate categories of facts, that fracture of the larynx is a result which follows in no description of instance, unless where there has been a powerful application of force; that its occurrence from any ordinary variety of blow, or form of casualty, of whatever degree of violence, is of singular rarity: but that it is not unfrequently observed in cases of criminal execution; while it may be regarded as the all but usual concomitant of homicidal throttling. Doubtless, if Spanish medical literature had been more copious, or of more easy access, we might have found our most vivid illustrations of throttling, in the lesions from the iron collar of the garrote. But there was no evidence, in the instance before us, of the possibility of the application of any extraordinary degree of force, through the instrumentality of any casualty; while there was evidence, complete and consistent, in the general tokens of asphyxia, of the maintenance of a constriction of the throat, and interruption of the breathing, sufficient in itself for the extinction of life, and continued to the extinction of life, independent of all necessary relation to any other supposed form of accident or outrage. The injuries here stood as the accessaries, and not as the essential: but they were of immense importance as evincing the force, and, in so far, the quality, of the agency by which the essential had been attained. Or, to vary the expression, if they were the accessary, in the sense in which we have spoken, with regard to the death, they were the essential with regard to the proof. From this consideration of all the circumstances of the injuries, their nature, their subject, their diffusion, and their intensity, the idea of the possibility of their casual infliction was at last abandoned: and reluctantly; for a profession, trained to soothe suffering and save life, knows nothing of justice and its retributions but the misfortune of their necessity.

But if all was thus excluded, except the conviction that the injuries had been wilfully inflicted by the hands of another, it was still scarcely prudent to attempt to define particularly the kind of violence which had been employed on the occasion. Any hard resisting body, a stick, or a hand callous with labour, if pressed firmly on the throat, might have caused the mark on the surface, with the lesions beneath, as readily as a ligature; though the very frequent occurrence of this mark, in consequence of suspension, and its peculiar linear appearance in the instance before us, point to the ligature as the most probable instrument: with the addition here, in all likelihood, of manual grasping, as suggested by the infiltrated condition of the thyroid gland, and the extensive extravasation. A very transient constriction suffices to produce the mark. In the, in many respects, remarkable case reported by Esquirol,[1] where a woman was cut down almost immediately after suspension, the mark was formed of a brown tinge ("brune, comme brulée"), but it first appeared eight hours after. The lividity of face also was not obvious till after seven or eight hours. According to the experience of Casper,[2] the mark seems independent both of the kind of ligature employed, and the duration of the suspension, and does not ordinarily acquire its colour till several hours after death. I have had occasion to remark it, however, after a shorter interval. A man committed suicide by hanging. The period at which he was cut down could not much exceed an hour from the time when he was suspended; and he was seen by me in about half an hour afterwards. The face was placid, only slightly livid, with no protrusion of the tongue, and the brown parchment mark was already distinct on the throat. There was, therefore, nothing to militate against the idea of the whole results having been produced within a very short interval; and the character of the injuries seemed to suggest the following as the most probable method of their perpetration. The woman had fallen, or been struck to the ground: hence, possibly, the contusion on the right side of the forehead. The supposed perpetrator had then knelt at her right side, with his face towards hers, and his right knee across her chest, causing the layer of effusion under the pectoralis major muscle: and then, pressing her head to the floor, by his left hand on the left side of her chin, producing here another mark, he had grasped the throat with his right hand, and strangled her with violent pressure, either with the hand alone, or aided by a ligature of some woven texture. Speculations of this kind, however, so peremptory in their details, have rarely a proper place in a medico-legal report. The conclusion was therefore restricted to the general statement, that death had been caused by some form or other of compression, or constriction, of the throat: leaving the accuracy of this to be tested by the evidence to be adduced from other sources; the individual agent, and the manner of accomplishment, to be shown and proved by the public prosecutor; and an ultimate, and safe, and precise conclusion, on the part of the medical witnesses, to be elicited in the course of the examination-in-chief, and cross-examination, during the process of trial.

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[1] *Médecine Legale*, Tom. II., pp. 163, 753.

[2] *Treatise on Homicide by External Violence*, p. 130.

[3] *Medical Jurisprudence.* (4th ed.) pp. 743, 749, 754.

The result of this, and of other facts ascertained during the usual preliminary inquiry on the part of the legal authorities, was an indictment of the husband of the woman before the High Court of Justiciary: in which he was accused of having caused her death;

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[1] *Maladies Mentales*, T. II., p. 851.

[2] Kleinert, *Repertorium der gesammt. med. chir. Journalistik*, Jan. Heft, 1837, p. 144.

the various counts or alternatives of the charge narrating, that "with hand or hands, or with some kind of ligature, he did violently compress or press upon her throat, or did violently press her throat against some piece of furniture, or other hard substance, or did thereby, or in some other manner, strangle and suffocate her." The accused was a man of massive frame and strength, and inured to labour. Both he and the deceased were understood to have been addicted to intemperance; the woman, especially, having been reported to have been prone to the grossest excess. He admitted that he was alone with her in the house at the time of her death, and that he had struck her in the passage: she then went into the kitchen, where, hearing her fall, he followed her, and found her dead, in a sitting posture, with the legs extended, and leaning with her back against a chair. The defence was that she had fallen accidentally, while in a state of drunkenness, and had thus produced the fatal injuries. In my examination, I stated my conviction, that the injuries could not have been the result of suicide, and that I could not conceive the possibility of their having been caused by an accidental fall, simple, and without precipitation, as against the edge of a chair. The jury, under the direction of the presiding judge, acquitted the prisoner.

The medical witness need not be surprised, if, in a trial of this description, he find the court more deeply imbued with the popular or poetic signs of strangulation,[1] than with the period after death at which certain of these signs may first present themselves, or with that less extreme picture which ordinary experience, and the more direct researches of medico-legal authorities, have sufficiently shewn to be frequently the truer representation. Neither should he be surprised, if he do not always meet with so ample an opportunity as he may judge desirable, to render his views fully intelligible, or to attain the consciousness that they are determinately understood. Few such witnesses can have ever been examined in court, and especially cross-examined, in a case of any intricacy, without having been occasionally painfully impressed with the disadvantage of being questioned by those, who, with a very limited knowledge of the methods of medical observation and deduction, and embarrassed, even more than they are willing to acknowledge, with the technicalities which are often necessarily involved, find it prudent, not the less, through the requirements of their position, to assume an air of infallibility, which possibly may be usually strong in proportion to the real weakness which it covers. It can be no wonder that it should be sometimes difficult to present a clear and rigid chain of evidence, demanding neither addition nor elucidation, where the interrogatories are often injudiciously framed, and many essentials probably either fail wholly to be elicited, or, where elicited, are passed over unobserved; and where the examiner pursues each part of his theme, or abandons it, or recurs to it, and drags the witness along with him, at pleasure. Should any inconvenience have accrued from this, it cannot, in any extended sense, be charged upon the medical profession; who have ever, as a body, been the strenuous respecters of the law and its authorities, and the conscientious ministrants to its justice, and who have never willingly given aid to mock Themis in her own temples. There are, doubtless, many admirable judges, who, with a fine intelligence, and a nice discrimination of the relative position of court and witness as to the means of knowledge and judgment, succeed in eliciting the truth with great exactness, without that overbearing assumption which seizes its own opinions, or clings to its own preconceptions, and believes that it has refuted others, when it has only imposed silence; but it is not everywhere that talent is associated with qualifications so eminently judicial. With the pleader, of course, the truth is not always desired.

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[1] But, see, his face is black, and full of blood;
His eye-balls further out than when he lived,
Staring full ghastly like a strangled man:
His hair uprear'd, his nostrils stretch'd with struggling;
His hands abroad display'd, as one that grasp'd
And tugg'd for life, and was by strength subdued.

Shakspeare, *King Henry VI.*, Part II., A. III., Sc. 2.

An attempt is even sometimes made, and has been abetted in quarters where it should have been least tolerated, to disparage the testimony of medical men, through derogatory remarks regarding their differences of opinion, on matters of evidence.[1] He would be a sanguine assertor of the powers of the human intellect, but a very shallow metaphysician, who could arrogate certainty, and, therefore, uniformity, for all its perceptions and conclusions, wherever exercised. But, after all, neither do the inconformities of medical evidence occur very frequently, nor are they usually upon topics of intrinsic importance: and assuredly, wherever they occur upon questions of purely medical import, they are only to be over-ruled by reference to still higher, or wider, authorities within the profession, and cannot be pretended to be judged beyond its limits, unless by those who choose to place themselves in the unwise position, whatever may be their attainments otherwise, of delivering confident opinions on matters with which they have only an imperfect acquaintance. Turning to the words of the greatest of pleaders, the most able and learned of lawyers may well yield here, where he who is wanted is one "non tam doctus, quàm (id quod est majus) expertus." With less indifference to the "tu quoque" argument, to which the medical profession can have neither the wish nor the equivalent motive to resort, it might be retorted to such animadversions, as no irrelevant question, whether lawyers themselves are never at variance in opinion; whether they are never found arguing peremptorily and habitually the most opposite views; whether even the bench is always undivided; and whether the law, as pronounced in one court, is never controverted by that in another?

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[1] Alison, *Principles and Practice of Criminal Law of Scotland: Practice*, p. 545.

ARTICLE II.—*Diseases of the Spinal Cord and its Membranes.* By EVANS REEVES, M.D.

(*Continued from p.* 130.)

General Symptoms of Chronic Spinal Meningitis.

OLLIVIER considered "dull dorsal pains, with deep numbness in the same region, and a sensation of fatigue in the extremities, to indicate the existence of chronic spinal meningitis." These symptoms may, however, exist in disease of the womb, kidneys, or vertebræ. According to my own observations of this disease, as it occurs either as a subacute (its most frequent) or chronic, from the onset, the following are its most characteristic features:—Pain is first experienced, of a constant character, which gradually extends, but sometimes, particularly after exposure to cold or over exertion, it will do so suddenly. It is seldom severe unless the vertebræ are diseased, then it is often intense, increased by motion, by striking the spinous processes with the knuckles, or by attempting to rotate the vertebræ; and deviation of the spine, or lumbar or psoas abscess, occur soon or late. In the course of the disease, as deposit occurs in sufficient quantity to press on the cord or nerves, the sensation and motion of the extremities become affected, the first is dull and the last interfered with from a feeling of weakness or constriction. Generally these symptoms are more pronounced on one side, particularly at the onset. Numbness is generally present, and sometimes pain, which follows the course of the nerves, or cramps. These symptoms, if present for any length of time, generally terminate by inducing chronic softening of the cord. Contraction of the affected extremities sometimes exists, either from the onset, or they occur in the course of the disease. It is met with under two forms, in one the parts are helpless and simply contracted, easily straightened at the onset, returning, as soon as the straightening force is removed, to their former state of contraction, but in the course of time, from disuse, the joints become stiff, and the tendons adherent to their sheaths; in the other, the permanent contraction may or may not exist, but whether or not, the parts are affected from time to time with convulsive contractions, their severity depending on the amount of nervous irritation excited. The first of these states generally marks a state of passive congestion of the pia-mater, and, when long continued, it generally excites opacity of this membrane, while the last marks a state of active congestion, and generally co-exists with deposit on the pia-mater. These convulsive contractions also exist in induration of the cord, but they are generally severe, affecting the whole extremity, while in disease of the pia-mater they are generally slight or confined to one set of muscles. Under both circumstances they depend on irritation of the nervous tissue, and on the extent of it the severity of the convulsive contractions will depend.

Dr Copland has observed, "from the tendency which false membranes have to become converted into adipose tissue, a marked improvement in the paralysed state ensues." This improvement is seldom of long continuance, for exertion or exposure to cold causes the symptoms to return with equal, and often with greater, severity. A like improvement often ensues, without this change taking place, from the local abstraction of blood, by relieving congestion; and by the exhibition of strychnine, pain and contraction being absent, by its stimulating the nervous centres, dormant not from disease but from the will not being able to exert its power. From the effused matter rarely surrounding the cord, paralysis of both bladder and rectum rarely exists; the contents of both may be passed with difficulty, and sometimes, when the disease has existed some time and is progressing, the first may require the use of the catheter to evacuate its contents, or the sphincter of the last may cease to be under control.

Few opportunities occur of observing chronic inflammation of the cervical region, particularly at its upper part, from the tendency which the cord presents to become early implicated, softening or induration being induced.

Terminations.—Chronic inflammation of the membranes is not of itself a fatal disease, particularly when not seated at the base of the brain or upper part of the cord, and death, when it does occur, is generally induced by some disease in itself fatal, or from acute inflammation being set up, which extends to the cervical region or to the brain.

The following tabular view will show the termination, duration, age, and sex of twelve fatal cases, seven of which were males and five females.

Sex.	Age.	
M.	32.	Death at the end of three years, from abscess of the kidney.
...	26.	Death at the end of twenty-two months, from lumbar abscess and phthisis.
...	46.	Death at the end of two and a half years, from grief, excited by being brought into the workhouse; ten days after his admission.
...	50.	Death at the end of four years, from apoplexy of the medulla oblongata. It was unconnected with the inflammation of the membranes, which was confined to the dorsal region. Softening of the dorsal portion of the cord existed, and the debris of softened nervous substance was found mixed with the effused clot.
F.	45.	Death at the end of fifteen months, from sloughing of the sacrum and diarrhœa. The cord was softened in its lower third.
M.	16.	Death at the end of four months, from eczema, diarrhœa and commencing sloughing of the sacrum. The cord, in its lower part, was softer than usual.[1]
F.	41.	Death at the end of thirty-two months, from sloughing of the sacrum, diarrhœa, and extension of the inflammation upwards, which assumed an acute character. The cord was softened.[2]

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[1] Bright, *Report of Medical Cases.* Case clxxvi.

[2] Brierre, *Nouvel Biblioth. Med.*, 1826. Tom ii.

Sex.	Age.	
F.	28.	Death at the end of four months, from phthisis.[1]
M.	22.	Death at the end of two years, from erysipelas of the face; two hours before death he became unconscious, and the lower extremities paralysed. The cord was softened.[2]
M.	38.	Death at the end of some months, from acute cerebral meningitis.[3]
F.	50.	Death at the end of twelve months, from acute inflammation of the membranes of the cervical region and base of the brain.[4]
...	50.	Death, from the inflammation extending upwards to the cervical region and becoming acute.[5]

Treatment of Spinal Meningitis.

1. *Of Acute Inflammation of the Arachnoid.*—The chief reliance in the treatment of this form of inflammation, must be placed on blood-letting, and the free exhibition of mercury both by mouth and by inunction, so as to bring the system under its influence as rapidly as possible.

In removing blood, the state of the pulse, and the strength of the patient must not be considered, for the first is often weak and irregular, and the last prostrated; yet the pain along the spine is severe and extending, and the paralysis increasing. It is therefore to the latter that the practitioner must look for guidance. It will be found in this, as in other acute diseases, that one or two large bleedings are more efficacious than several small ones; this will be seen by referring to the table given, when speaking of the duration of arachnitis.

In exhibiting mercury by the mouth, the practitioner has a great difficulty often to contend with, from the tendency which it has from paralysis of the sphincter ani to run off by the bowels. When this is the case, gloves and socks saturated with the ointment, should be worn, frictions with the same being also used, if the skin will admit of it.

2. *Acute Inflammation of the Pia-Mater.*—The treatment to be employed in this, as in the former disease, is essentially the same, but it should be, if possible, more energetic, and as in it, directed, not by the state of the pulse and apparent strength of the patient, but by the severity of the pain, and the tetanic rigidity.

The treatment of this disease has not been hitherto attended with success. This has, I think, arisen from its not being sufficiently active; the practitioner, guided by the state of the strength of the pulse, has hesitated, from a dread of hastening the fatal termination, to use the measures which might, if used with energy, have saved the patient's life.

In most of the recorded cases, the practitioners were taken by surprise, particularly when the tetanic symptoms were not strongly marked; when they were, they were treated as tetanus, by tobacco enemas, and chloroform inhalations.

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[1] Bright, *Guy's Hospital Reports,* 1836.

[2] Rokitansky, *Pathol. Anatomie.*

[3] Albers, *Jour. die Chirurgie und Augen Heilkund.* Bd. xix.

[4] Copland, *Dict. of Med.,* Art. Spinal Cord.

[5] Ibid.

The reader must have been struck with the close resemblance which tetanus and inflammation of the pia-mater bear to each other; there cannot, I think, be a doubt but that they are identical, the absence of pathological changes in tetanus being due to the rapidity with which death is induced by the too free use of tobacco enemas, and of late years to chloroform remedies, which prove but of temporary service after the first or second day, and to the non-administration of nourishment.

Powerful as these remedial agents are, in the first and second days of tetanus, there is no treatment so certain as the free abstraction of blood and salivation. I know of no instance where tetanus has proved fatal after salivation has been induced.

3. *Of Chronic Spinal Meningitis.*—When uncomplicated with any disease which would counter-indicate their use, the repeated abstraction of blood from the seat of pain, and the cautious exhibition of mercury, to induce slight salivation, its effect being kept up for some time to favour the absorption of the inflammatory elements. During this time: the strictest rest should be enjoined. Again, the use of strychnine is sometimes followed by marked benefit, particularly in cases of some standing, pain being absent, and the parts affected with paralysis not being greatly benumbed.

2. *Acute Myelitis.*

Pathology.—The cases observed and collected for the purpose of forming a history of this disease amount to twenty-six in number. The most constant alteration met with, after death, was softening, which varied in consistence from soft cheese to thin pap. The softened parts presented various shades of colour; sometimes they were of a venous, or rose-red, while at others, they were yellow (the most constant), or cream-white, sometimes tinged with red, or intermixed with red spots or striæ. This softening, as it occurs in the disease now under consideration, is preceded by a state of increased density, which gives rise to certain symptoms which will be hereafter considered as the second stage of acute myelitis.

This state is not always observed after death; when implication of the cord occurred in spinal meningitis, it was absent, or existed only on the borders of the softening, and but slightly marked; in the twenty-six cases of acute myelites, it was observed in six only of the number; in five of these the inflammation was general, while in the other, it was situated in the lower part of the cervical, and upper part of the dorsal, regions.

Except in one case, observed by Bergamaschi,[1] where it was hardened throughout, it was accompanied by softening. In another case,[2] observed by the same author, the cervical and lumbar portions were hardened, while the dorsal was softened; in one case, observed by Ollivier,[1] it was softened opposite the eight dorsal vertebræ, but hardened in the rest of its extent; in another, which occurred to Bouillaud,[2] it was softened to the extent of eight or ten lines near its upper part, but otherwise hardened, while in one observed by myself, it was hardened in the cervical region but softened in the rest of its extent. In another case, where the inflammation was situated in the lower part of the cervical, and upper part of the dorsal regions, the cord was tumified, most marked in the last; the grey substance was infiltrated with yellowish grey exudation, yellowish red softening; in the vicinity of the second and third vertebræ, the grey matter was replaced by a spindleshaped plug of yellow exudation, one inch long, and three or four lines thick.[3]

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[1] *Sulla Mielet Stenica e Sul Tetano.* Pav. 1820, Osservat. ix.

[2] Osservat. viii.

The membranes were rarely implicated; this was the reverse of what was observed in meningitis, for in it the cord was frequently affected; the spinal fluid was, however, from congestion of the membranes, generally increased, and the more extensive and active this was, the greater its quantity, and the more sanguineous its hue. By the aid of the microscope a certain element termed inflammatory, or exudatory, is found in this disease; it consists of globular-shaped corpuscles, distended with granules, and it is to their effusion that the state of induration is due, and subsequent breaking up, setting free the granular matter, and inducing distinction of the nervous substance, that softening is produced. A state of active congestion of the capillaries precedes, and accompanies the development of the corpuscles. The softening met with in acute spinal meningitis is equally an inflammatory change, but it seems due to passive rather than active congestion.

A state beyond that of softening is sometimes observed, less rarely, however, in acute than in chronic inflammation, and generally confined to a limited space. In it globular corpuscles, granules, and nervous substance have all disappeared, leaving only a little troubled, or yellow serum, in which particles of cholesterine may sometimes be observed floating. Whether the granules have been destroyed from the want of materials to nourish them, or have become reabsorbed, it is impossible to say. Gluge believes that he has seen them in the blood-vessels.

In tracing the effects which the states of *congestion*, *induration*, *and softening* produce on the nervous fibres of the cord, it will be found that in the first they will be more or less tumified and irregular, as if they had been soaked in water; in the second a similar state will exist, and they will be more or less broken, from the pressure of the corpuscles; in the third they are still further destroyed, in this case from the breaking up of the corpuscles.

The red softening is due to the effusion of blood either from rupture of the capillaries or transudation: yellow to the existence of hematosine, while in the white, the vessels are intact, and by cautiously allowing a fine stream of water to fall on the softened parts, a network of vessels may be brought into notice, in which blood, partly fluid and partly coagulated, will be found.

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[1] *Sur la Moelle Epiniere*. Obs. lxxxii.

[2] *Journal Hebdom.*, 1834. Tome i.

[3] Rokitansky *Pathol. Anatomie*. Bd. 11-862.

Gluge enumerates pus and fat among the elements present in softening. Pus is, however, rarely observed; the only cases where it is likely to be met with are those where the inflammation is limited to a very small space, or where the acute supervenes on the chronic; and as Dr Bennett of Edinburgh observes, his statement is not borne out by his observations.

Fat globules, again, are never observed in acute inflammation, but they are constant in chronic inflammation, particularly in induration. This seems due to a tendency which they possess to become converted into fat. Lebert considers that the granules are of a fatty, albuminous nature, and Vogel found that they were partly soluble in ether, their non-soluble portion being some modification of proteine. Softening, it must be observed, occurs from other than inflammatory causes. It is met with in chorea, puerperal, and other convulsions, spinal concussion, typhus-fever, cholera, cadaveric changes, injury in opening the canal, etc., and is undistinguishable by the eye from softening arising from inflammation; but under the microscope the granular corpuscles are found wanting.

I have lately observed it in a child, which had, a few days after an attack of general convulsions, irregular and sudden contractions of the lower extremities. It had diarrhœa. The mucous membrane of the intestines was congested and ulcerated, but no other lesion could be detected.

Case XII.—A female,[1] aged 27, stout and fat, entered the Royal Infirmary on the 29th of January 1842. She is stated to have previously laboured under violent hysterical symptoms. During the last three weeks she had been exposed to cold and fatigue. Ten days ago she was seized with violent and continued rigors, loss of appetite, stiffness and pain of the lower jaw, followed by cramps and pain in the shoulder and back. When admitted, her face was flushed and anxious, with risus sardonicus, and a sensation as if a ball was rising in the throat; attacks of weeping and screaming from fear of lock-jaw; skin bedewed with clammy perspiration; pulse 130, of moderate strength, trismus complete; there was considerable tenderness of the maxilla and right scapula. She had occasional attacks of opisthotonos; articulation distinct. Assafœtida and morphia were given, and mercurial ointment and extract of belladonna rubbed on the spine.

30th, Same state, but the respiration is laborious; slight tenderness on pressure over the 7th and 5th dorsal vertebra. Limbs are unaffected. Blister to the spine; enemata of turpentine and assafœtida.

31st. Slight remission.

Feb. 1st. Great anxiety of countenance; respiration hurried; deglutition difficult; otherwise the same. Tobacco enema every three hours. After the first, she had a violent attack of opisthotonos, during which the extremities were rigid. Head shaved and ice applied to it and the spine.

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[1] Dr Bennett on Inflammation of the Nervous Centres. Obs. X.

4th. Slight amelioration. To-day the spasms returned with violence. During the 5th and 6th little change. On the 7th, she had a very severe spasm; since then the rigidity has continued; pulse feeble, tracheal râle; death.

The cord opposite the 11th and 12th dorsal vertebræ was broken down into a pultaceous mass; no exudation corpuscles existed. The lower lobes of both lungs were much congested.

Case XIII.—A female, aged 19, who had been subject, in consequence of fright, to epilepsy for six years, died in a state of stupor, after having had five accesses in eighteen hours.

The vessels of the head and the spine were loaded with black blood; both the brain and the cord (the last greatly) were injected and softened, but no inflammatory corpuscles could be discovered. The spinal canal contained a considerable quantity of red serum; the lateral and fourth ventricles a small quantity. The colon was loaded with fæces, and the uterus contained a five months old fœtus.

Case XIV.—A stout feeble man between 60 and 70 years of age, was tripped up by treading on a piece of orange peel, and fell, the lower part of his sacrum striking with great force against the pavement. He became insensible, and was taken up and conveyed to Charing Cross Hospital.

He soon recovered his mental faculties, but both his upper and lower extremities were motionless. On the fourth day, from a dread of dying in the hospital, he was conveyed home, where I had an opportunity of watching the case. His voice was weak and interrupted; breathing slow; pulse soft and feeble, and heart's action weak; when asleep, the slowness of the first, the feebleness and weakness of the last, were still more marked. The upper and lower extremities were quite motionless and insensible, and their temperature diminished. The sphincter ani was relaxed, still there was no involuntary escape of the contents of the bowels. A turpentine and gruel enema was injected; it returned on pressure being made on the lower part of the descending colon, bringing with it a little fæcal matter. But very little urine was secreted; in two days not more than half a pint was drawn off. Stimulating embrocations were applied to the spine, and the day before death, galvanism was had recourse to, and it was thought with some benefit, for the arms seemed more sensitive when pinched. He was found dead on the morning of the twelfth day. At the *post-mortem* examination made thirty hours after death, the cord was found of a bluish tinge, pulpy to the touch; the brain presented a somewhat similar state, but much less marked. The cord was carefully examined, but no trace of hæmorrhagic effusion could be found. The nerve fibres were unusually large and irregular, but no granular corpuscles could be discovered. The heart and the large blood-vessels contained fibrinous clots; the stomach distended with fluid; the bladder nearly empty.

Case XV.—An elderly woman fell down stairs and died in a few days with symptoms indicating injury of the spinal cord. The vessels of the lower part of the membranes were turgid, and a considerable quantity of serum existed in the canal. The cord was softened from the first dorsal vertebra up to the seventh cervical, where it was pultaceous. When the softened part was examined with the microscope, the primitive nerve fibres were found destroyed, but no granular corpuscles could be discovered.[1]

Causes of Acute Inflammation.—These may be arranged under two heads, namely *Idiopathic and Traumatic.*

1*st*, *Idiopathic.*—Whatever can induce active and continued congestion, such as sudden exposure to cold when heated, or when convalescent from disease, sudden suppression of profuse perspiration, or of the menstrual discharge, the non-appearance of the eruption in eruptive fevers, sleeping in a damp bed or room. Again, it sometimes occurs during fever, inflammation of the lungs, kidneys, bowels, brain and membranes of the cord, or disease of the vertebræ.

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[1] Vogel Icones. Pathol. Histol., Leipsig, 1843. 60.

2*d*, *Traumatic.*—Injury of the bones of the spine; fracture, with or without depression, laceration of the ligaments. The cord in these cases usually receives some injury at the same time. Concussion, effusion of blood into the substance of the cord, or between it and the pia-mater, wounds, etc.

General Symptoms of Acute Idiopathic Inflammation.

These will be best considered under three stages,—1*st*, *Congestion*, 2*d*, *Induration*, 3*d*, *Softening*.

1*st*, *Congestion.*—The most prominent indications of this stage, are pain in a part or in the whole length of the spine, with painful numbness in the parts supplied by nerves, derived from the point where the congestion exists, sometimes paralysis of motion, more or less marked, while at others extreme debility, accompanied by pain. The sensation of the parts affected may be intact, sometimes somewhat obtuse, very rarely in this stage increased. In some cases an alteration in the state of the cutaneous sensation is observed before the power of motion becomes affected. When the cervical portion of the cord is affected, the breathing may be oppressed or noisy, and deglutition difficult, or an uneasy sensation exist in the throat, and the motion of the neck will be interfered with from the pain which any attempt to move it excites; some degree of stiffness may also exist. The brain seldom escapes; there is generally headache and sometimes stupor.

When the centre and lower part of this portion of the cord is affected, the voice is generally feeble and interrupted, but when the upper and intercranial, ptosis, amaurosis, defective articulation, and sometimes words are used contrary to the sense intended, the patient being conscious of their inapplicability. When the lower half of the cord is affected, the symptoms from the functions of the parts not being complicated, are less diversified. In addition to the pain at the point where the congestion exists, numbness, debility, and loss of power, and sometimes pain increased or excited by motion will exist, and sensation will be more or less obtuse.

When the cord becomes secondarily affected, this stage can very rarely be recognised; the symptoms which mark the existence of the second or stage of induration, being the first to draw the practitioner's attention to the existence of disease of the cord. When the congestion of the cord is general, or if it is extensive, particularly when seated in the cervical region, convulsions are often excited, and hasten the development of the second stage.

Case XVI.—A girl, 15 years of age, was seized with symptoms indicating the approach of scarlet fever, which was then raging in the house where she resided. She had headache, pain in the back, vomiting, with slight fever, but the eruption did not make its appearance. She continued in this state for three or four days. Warm baths, with diaphoretics were ordered, but without effect. She had complained throughout of a feeling of constriction in the throat. On the morning of the fifth day, she also complained of a feeling of severe constriction across the lower part of the chest, and her breathing was oppressed; the lower extremities and lower half of the trunk were motionless, and some difficulty in moving the upper extremities existed. There was pain in the spine as high as the fifth dorsal vertebra, increased by motion, but not by pressure. Pulse 90, of moderate power. A feeling of numbness existed in the paralysed parts, but sensation seemed only somewhat more obtuse than usual in the upper extremities, while in the lower it was nearly abolished. She had never menstruated.

As the symptoms did not seem to warrant the abstraction of blood, a brisk antimonial purgative was ordered her, and a blister applied to the back. At noon she was seized with severe convulsions of the upper and lower extremities, her body was rigid, head thrown back, corners of mouth drawn down, breathing noisy and convulsive, but she continued sensible throughout, although unable to speak. After lasting about ten minutes, the convulsions ceased. The upper extremities were found, half-an-hour afterwards, to be as much paralysed as the lower, and any attempt to move the lower excited severe pain. As the purgative in the morning had not acted, a dose of calomel and croton oil was given, with the effect of rapidly bringing away a large quantity of dark-coloured fæces.

At 4 P.M. the skin of the lower extremities and pelvis had become extremely sensitive, and she had frequent desire to pass water; only a few drops, however, being voided. The skin of the upper part of the body and upper extremities was also somewhat sensitive, and the feeling of weight at the epigastrium had increased, and the breathing was much oppressed. Skin burning hot, pulse quick and full, tongue red. It was evident that active measures were necessary to save life. A large opening was made in a vein, and blood allowed to flow until fainting was produced; this was followed by the exhibition of two grains of calomel and a quarter of a grain of tartarised antimony every two hours, and causing her to wear gloves and socks saturated with mercurial ointment. At the end of thirty-six hours, her system began to experience the effect of the mercury. The extreme sensibility of the skin began first to diminish, then the power of motion to return, and at the end of a fortnight she was well. A feeling of weakness in the lower extremities remained, and still continues, although three years have elapsed since the attack.

In a case reported by Ollivier, convulsions of the upper and lower extremities with rigidity of the trunk set in three days after pneumonia appeared. Paralysis of the lower extremities had existed, but the patient had recovered from it three months.

Dr Tweedie[1] observed in the case of a young lady who was in an advanced stage of fever, sudden muscular contractions of the extremities—the arms were alternately thrown out and drawn back to the trunk, with great violence, while at another contractions of the lower extremities took place. They ceased almost immediately after the abstraction of a large quantity of blood from the spine.

In another case observed by Ollivier, the patient had been subject to epilepsy since youth, and the development of the inflammation was accompanied by an access.

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[1] Art. Myelitis, in *Encyclop. Practical Medicine.*

Portal[1] mentions the case of a fat strong female who experienced severe convulsions of the left lower extremity. Each time the menses were about to appear, ceasing only when they flowed in considerable quantity. The menstrual discharge ceased about forty, then this extremity became quite paralysed, convulsions of the arm of the same side set in, and she died at last in a state of coma. The membranes of the cord were found congested, and the cord in its left side was red and softened, the right being quite healthy.

2*d*. *Induration.*—This must be considered as the true inflammatory stage, for it is in that the globular corpuscles become developed, and destruction of the nervous substance begins to take place.

The symptoms will present some modification according to the part of the cord affected, the extent of the disease, and the degree of irritation excited; for if but a small space is affected, and but little irritation excited, they may be absent or but little marked.

When the cervical portion is the seat of the disease, the muscles of the eyes, face, jaws, or neck, will be affected first with rigidity, then contraction and convulsive motions more or less marked; those of the pharynx and larynx are also generally affected, a sense of constriction exists in the throat, accompanied by difficult deglutition, sometimes so severe as to render the passage of even a few drops of water into the stomach impossible; the voice is feeble, sometimes suppressed or hissing, and accesses of suffocation occur spontaneously or on drinking hurriedly, particularly of cold fluids. When the disease is situated so low as to implicate that portion of the cord whence the brachial plexus is given off, one, sometimes both arms, become affected, first with cramp-like pain, aggravated by shocks; with these, the fingers, hands, forearms, and arms become flexed, sometimes gradually and in succession, while at others suddenly, induced and increased by the shocks. Even when complete flexion has been induced, the convulsive shocks still continue to occur, but they very rarely, if ever, assume the form of clonic convulsions. Both arms are rarely affected at the same time; first one and then the other becomes affected. Neither do they invariably present the same symptoms, sometimes one is affected with pain and convulsive twitchings, the sensation being increased or but little altered, and some degree of voluntary power remaining, while the other is paralysed both in motion and sensation. This last state is most frequently observed in the arm which becomes secondarily affected. When that portion of the cord situated below the cervical region is affected, some diversity will also exist in the symptoms, according to the extent and position of the disease. If it is situated in the middle of the dorsal region, and of small extent, the symptoms may be of a very slight description. If, however, it is extensive, the muscles of the back will be rigid and affected with contractions, those of the walls of the chest will be equally affected, rendering the breathing difficult; when extensive, from general oppression of the chest, or when partial, to a sensation as if a band or cord was bound round it, the muscles of the abdomen will be generally more or less affected, and the bladder seldom escapes, a frequent desire to pass water being sometimes observed. The arms seldom escape, even when the inflammation does not extend up beyond the centre of this region, and paralysis, more or less marked, is generally present.

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[1] *Anat. Médicale.* Tome iv. 116.

When the lower part of the dorsal and lumbar portions are the seat of the disease, the lower extremities are affected with pains of a cramp or lancinating character, increased cutaneous sensibility, and clonic convulsions, and flexion, until the heels at length rest against the buttocks, and the thighs on the pelvis. This state of flexion, as in the case of the arms, may be established gradually, or it may be excited by the clonic convulsions and increased by them. Even when it is fully established, the extremities still continue to be affected with convulsions, in which they are suddenly extended, and then as suddenly retracted; generally both act in unison, but some times one is retracted while the other is extended. The convulsions generally occur spontaneously, but grasping the limb, tickling the soles of the feet; pricking the skin will excite them, and if the cutaneous sensibility is much exalted, they may even induce general convulsions—severe pain is excited by them.

Fever is generally present, but it is seldom severe, unless the disease is extensive. The pulse is quick, sometimes hard, while at others it is without much power: in inflammation of the cervical portion, it may not be quicker than natural and even irregular.

3*d*. *Softening*.—The parts before the seat of pain, from convulsive contractions and increased cutaneous sensibility, now become motionless and insensible. Sometimes from the softening not being complete, the parts are still affected with convulsive agitations which will, if convulsions occur in any other part of the body, be increased, and sometimes assume all their former severity.

The state of flexion sometimes subsides, when it does continue it seems to depend rather on the state of contraction of the muscles than upon any influence exerted by the cord. In some cases it can be overcome without much force, the parts returning to their former state as soon as the force is removed, while in others they remain as they are placed. The pulse becomes weaker than it was in the other stage, the bladder and rectum, if not before, are now generally paralysed, and the strength fails.

This stage sometimes exists without being suspected, the other stages being equally unrecognised, this is particularly the case when the dorsal region is the seat of the disease. In a case observed by Dr Antonini,[1] the only symptoms referable to the cord, were cramps in the legs, and severe pains in the joints on the slightest motion, with frequent desire to go to stool, and first difficulty then, constant desire to pass water. Death ensued from yellow fever. The cord opposite the 6th dorsal vertebræ, offered a state of complete separation 9 or 10 lines anteriorly, and 1½ inch posteriorly, the space was filled with a yellow slightly troubled serum. The corresponding points of the destroyed cord were softened in an extent of one or two lines.

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[1] Petronelli, *Thèse de Montpel.*, 1826. No. 83.

In a case which fell under my own notice, the cord was softened in the dorsal region, and yet the only symptoms observed during life was retention of urine, and pain not of an intense character, in the back.

Again, this stage is frequently alone recognised, the other two being absent, or so slight as to escape notice.

ARTICLE III.—*A Case of Supposed Impermeable Stricture of the Urethra Cured by Dilatation, with Remarks.* By KELBURNE KING, M.D., Edin.

OF late years, no surgical disease has received a greater share of the attention of the profession then stricture of the urethra. We rarely take up a periodical without finding mention of some "New Method of Using the Catheter," or some mode of producing "Instantaneous Cure of Strictures." The treatment by bougies, almost universally recommended to the exclusion of all others ten or fifteen years since, is now apparently considered too slow and too commonplace to demand much attention. Mr Guthrie, indeed (*Lancet*, 1851, vol. i., page 619), tells us that "a hard and elastic, or intractable stricture is never permanently cured by dilatation," while others, taking a still gloomier view, pronounce that whatever be the treatment adopted, "relapses are the rule, and perfect cure, the exception."—*Lancet*, vol. i., 1853, page 58.

If such be the result of the ordinary treatment of this very common disease, we cannot wonder at the almost infinite variety of appliances and procedures, recently proposed from the application of caustic potass, so strongly recommended by Mr Wade, to the last complicated proceeding, communicated by M. Maisonneuve to the Academy of Sciences of Paris. Of these, I may simply allude to the method of rapid dilatation by Mr Wakley's instruments, of incision into the urethra behind the stricture, as proposed by Mr Simon, of puncture through the rectum, as practised by Mr Cock, internal incision by M. Reybard, and lastly, subcutaneous incision, as proposed by Mr J. Z. Lawrence, in a late number of the *Lancet.*

Good, no doubt, will ultimately arise from the full and free discussion which these different methods of treatment necessarily occasion. In the meantime, it may be well to glance at one of the most important points which have been recently noticed, and consider the effects which its establishment, as an acknowledged fact, will produce.[1]

The statement of Professor Syme of Edinburgh, that all strictures are permeable is, in my opinion, of the utmost importance with reference not merely to the operation which he recommends, but to the whole treatment of this disease, and if the general admission of this fact should be the only result of his labours, he will have conferred a great boon on the profession. My object, in the following paper, is simply to exhibit a case in which a stricture, supposed for years to be impermeable, was proved to be otherwise, and to express my firm belief that the word impermeable, in connection with stricture, uncomplicated with other diseases, ought to be banished from the vocabulary of the surgeon.

Some difficulty in settling this point arises from the fact, that two circumstances have to be taken into account, one the condition of the part operated on, the other the skill, patience, and other mental and physical qualities of the operator. Setting aside altogether the remarkable facility that some men may acquire from peculiar circumstances, personal and accidental, it is clear that it will make a considerable difference to the majority of surgeons, whether they suppose that they are engaged in an operation which, with ordinary skill, ought to be successful, or in one which frequently defeats the highest surgical talent. It is not a long time since it was believed that dislocations of the hip joint were irreducible. No disgrace, therefore, was attached to the surgeon who did not overcome a difficulty then thought insuperable. The fallacy of this idea was pointed out, and what would now be thought of any one who was habitually unsuccessful in replacing recent instances of that accident? A considerable experience convinces me that the same rule holds good with regard to strictures. Surgeons have been accustomed to read of them as frequently impermeable, and to see them treated as such in the hands of eminent men, and have, in consequence, bestowed less pains in overcoming them than they otherwise would. I have repeatedly had strictures sent to me as impermeable, and, on inquiry, have found that they had been condemned to that hopeless condition because a catheter as large as the ordinary bougie No. 1. could not pass. I would state very confidently, that if sufficient pains be taken in the selection of instruments, and sufficient care and patience exercised in their introduction, those cases will be few indeed which will be set down as impermeable, and perhaps so infinitesimal in number, that we may be justified in adopting the axiom that *strictures are permeable*. My attention was first forcibly directed to this circumstance by the case of a man who consulted me several years ago, on account of retention of urine, but protested against any attempt to use the catheter, because he had been long under treatment for stricture in a metropolitan hospital, without any instrument having been got into his bladder, and had been told on his dismissal, that he need not expect any relief from instruments, as there was no passage for them. Yet this man, having been induced to submit to a somewhat protracted trial, was found to have a tight stricture certainly, but one which yielded with tolerable facility to the graduated use of bougies. In this case, however, a long time elapsed between my seeing the patient and his sentence having been pronounced, so that it is quite possible some alteration may have taken place between times. I have thought it might not be out of place to give the details of a case to which this objection does not apply, and have selected the following from several cases occurring in my own practice within the last three years, and in which strictures, supposed to be impermeable, yielded to the use of the bougie.

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[1] Having been Mr Syme's house-surgeon at the time, I remember that he made use of subcutaneous incision in his early cases, but abandoned it in consequence of the occurrence of extravasation.

On the 30th January 1854, I was asked by my friend Mr Hodgson of this town, to visit G. C. R., a solicitor's clerk, aged about 31, who gave the following account of his case. He stated that since 1845, he had never been free from urinary complaints—the commencement of which he attributed to the use of a solution of nitrate of silver for the cure of a gleet. For the first three or four years, though he suffered a good deal from frequent slow and painful micturition, he did not experience much actual inconvenience, except after committing some error in diet or other imprudence. In 1849 he contracted a fresh gonorrhœa, and the discharge was so obstinate, that suspecting it might be occasioned by the existence of stricture, his surgeon attempted to pass a bougie, but in spite of frequent trials did not succeed in reaching the bladder. His sufferings increased, but he was not obliged wholly to lay up till the month of October 1850, when, in consequence of some slight excess, he had a severe aggravation of his symptoms. The calls to empty the bladder became very frequent and painful, and he began to experience fits of retention. He became subject to what was considered a kind of rheumatic fever, with severe pains shooting down his thighs and legs, frequent rigors, low spirits, and general debility. At this time he was for two years under medical treatment, and many attempts were made to penetrate the stricture, but without success. His condition became gradually worse, the fits of retention more frequent and severe, and he suffered dreadfully from neuralgic pains of the limbs and feet. In 1852, this last symptom was thought so urgent, as to require the application of blisters to the feet and ankles. Daily attempts were again made to pass a catheter, but without success; and though the pressure of instruments often caused the urine to flow after their withdrawal, only once during the whole period of treatment was it observed to escape through the catheter. About this time he became acquainted with Mr Wade's *Treatise on Stricture,* and at his own request the caustic potass was applied as there recommended. He stated that, when pressure was made for a minute, he felt as if something gave way, and the instrument could be easily pushed in for a considerable distance. A flow of urine usually followed its withdrawal, and in this way his attacks of retention were frequently relieved. These became, however, more and more frequent, and could not be relieved by the catheter; the other urinary symptoms increased in severity, his general health became much affected, and his strength greatly reduced. He could hardly sit up in bed, but had to be propped by pillows. By the advice of a physician he left Hull, and went for change of air to a village on the opposite side of the Humber, but not experiencing any benefit, he went to London, and consulted a homœopathic physician. As globules proved ineffectual, he was referred by his adviser to a surgeon, who, on examination, informed him that he laboured under spermatorrhœa. This surgeon made many attempts to pass instruments, and introduced various ointments into the canal, but never reached the bladder. I may state here, that in all these attempts, considerable bleeding took place from the urethra. From London he went to Brighton, where his general health improved, and he returned to Hull in the latter part of 1853, considerably stronger, but suffering as much as ever from his urinary symptoms. In December 1853, he got cold in travelling, and had a severe paroxysm of his complaint. By this time his urine never passed in a stream; he had incessant calls every half hour, night and day, but only a few drops dribbled away at a time. Having taken a single glass of whisky and water, he had some days before I saw him, a violent fit of retention with pain and straining. He got into a warm bath, and passed a bougie as far as he could, in the hope that, as frequently happened with him, its pressure might cause the urine to pass. This result did not follow, and he observed that some blood passed by the anus. He then sent for Mr Hodgson, who passed a catheter readily up to the eyes without using the least force. The pressure of the instrument excited a copious flow of urine, but it was noticed that it all passed by the sides, none through the aperture. The patient likewise observed that some drops came away per anum.

On the evening of the following day (30th January 1854), I saw him along with Mr Hodgson. We found that a full sized catheter passed easily, apparently in the right direction, and as far as the length of the instrument allowed. But no urine came away by it, although he had passed none since morning, and the tumour in the hypogastric region proved that the bladder was full. On passing my finger into the rectum, I found that the beak of the catheter had entered the cavity of that bowel by a false passage, which, on withdrawing the catheter, could be distinctly felt as a roughened surface on the anterior aspect of the rectum, about an inch above the anus. The nature of the case, and the necessity of confinement to the house during the early stages of the treatment having been explained to the patient, he requested a few days to arrange his affairs, and it was the 5th February before I saw him again. We then succeeded, though not without considerable difficulty, and after a long trial, in passing catheter No. 1 through the stricture into the bladder.[1] A large quantity of offensive ammoniacal urine was drawn off, and the patient watched with great pleasure the stream running from the catheter, which, small as it was, he said greatly exceeded what he had seen for years. The instrument was retained in the bladder for forty-eight hours—a point of great importance in cases of very confirmed stricture. I could then have brought about a seemingly quicker cure by means of rapid dilatation; but if stricture is occasioned by the deposition of adventitious structures which are capable of absorption, it is clear that to procure this absorption time must be given—the effects of rapid dilatation must be purely mechanical—and this sort of dilatation or stretching, though it may be carried to a very great extent in mucous canals, is never permanent, being followed by a speedy return to the original dimensions. As the great object in the treatment of stricture is to obtain a permanent cure, we must discard as much as possible the fallacious assistance derived from mere mechanical stretching, and place our main reliance on those means which promote absorption of the abnormal tissues. There is no way to attain this end in the vast majority of cases, so certain, as the slow and graduated use of bougies. In reference to the frequency with which this operation should be repeated, it must depend on the nature of each particular case. It ought not to be done so frequently as to occasion pain—twice a week is often enough, and even once a week will in many cases be found sufficient.

I have little more to say regarding the progress of this case. Instruments were introduced at intervals of three or four days. He never had a bad symptom of any sort, and progressed so favourably, that on the 10th April the largest sized bougie could be passed with readiness. He had long before resumed his usual duties, and from that time till the present day (September 6, 1855), he has never had any return of his former symptoms. On dismissing him, I recommended that he should have a full-sized instrument passed once a month for some time—an injunction he soon ceased to attend to; but I took an opportunity lately of examining his urethra, and can vouch so far for the permanence of the cure.

I have entered at considerable length into the details of this case, not because there is anything remarkable about it—considered simply by itself—but because it is a sample of a class of cases sufficiently numerous to call for some remark and consideration. There was originally permanent stricture, combined with great irritability of the canal. The instruments employed for its cure (judging by those I saw), were too large to penetrate it, and the fatal facility of classing it among "impermeable strictures," prevented those exertions which would have long before restored the canal to its normal condition. It also illustrates the utility of the ordinary method by dilatation in a case where the too ready employment of this word "impermeable," had condemned the patient to years of suffering. The means of remedy were simple and at hand—but from a belief that the cure was beyond their reach, they had not been taken advantage of, and I have been induced to select this from many other cases of the same sort which have been brought under my notice, for the purpose of lending what assistance I can in dispelling an illusion which is still too widely spread.

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[1] The catheter No. 1 I use, is four sizes smaller than the usual bougie, No. 1.

The extent to which the false passage was carried in this case is something remarkable. In spite of the statement made by the patient regarding the passage of blood and "water" per anum, I was not prepared to find that the bowel had been actually penetrated. It is not easy to limit the course of an instrument which has once passed out of the urethra, but I do not think that a bougie or catheter could have been forced through the walls of the rectum, but for the assistance afforded by the caustic potass. This agent has always appeared to me too powerful in its action on living tissues, to be with safety thrust in the dark against an obstacle never very distinctly defined, and which is no more liable to its effects than are the surrounding healthy structures. In ordinary cases its aid is not required, and for extraordinary cases there are other means safer and better, because more under the control of the surgeon. This case presents to us one of the effects which may result from its application in a wrong direction.

There is another point in the treatment of stricture to which I would call attention, in connection with the foregoing. In surgical writings and lectures, we occasionally find it recommended to make pressure against a stricture which does not readily yield. In this way it is said absorption is promoted, the strictured part gradually reduced, and the ultimate cure greatly facilitated before the stricture has been permeated at all. This process has received the name of "tunnelling," and has been recommended on high authority. Now, there are doubtless many strictures which do not admit of penetration at the first attempt, and it may soothe a patient's mind to allow him to suppose that these unsuccessful attempts clear the way for what is to come after; but I have never observed, in my own experience, that any real good has followed from them. In the case related, it was tried for years, but without even retarding or alleviating the progress of the symptoms. However it may be explained, I have never seen any beneficial result until an instrument can be fairly passed into the bladder. I would, therefore, advise no one to linger tunnelling on the threshold of a stricture, but, with all expedition, by patient, steady, and gentle manipulation, strive to penetrate it, regarding that as the first indispensable step towards a cure.

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ARTICLE IV.—*Practical Remarks on the Treatment of the various forms of Dyspepsia.* By JAMES J. ROSS, M.D., Surgeon, Golspie, Sutherlandshire.

(*Continued from p.* 220).

5. *Dyspepsia, with or without vomiting of matters, mucous or ropy, acid or rancid, heartburn and pyrosis.* (*Excessive and perverted secretion*).

IN this form of dyspepsia the appetite is often not much affected; it is, perhaps, more common to meet with a kind of feeling of emptiness which leads to a craving for food to relieve it, than with anorexia; but sooner or later after partaking of it, the patient is always worse. An arid sensation of heat is felt at the epigastrium; there is a sourness at the stomach, with sour eructations, and frequently with contractions, which vary in severity from the slightest griping pains up to the most agonizing cramps; there may then be only slight heartburn, or there may be violent cramp. The eructations may be merely gaseous, of an acid, an acrid, or a rancid taste; or there may be ejection without effort, an expuition of a thick, clear, glutinous, white-of-egg-like fluid, which hangs in threads from the mouth, either perfectly tasteless or so sour as to set the teeth on edge, constituting "water-brash;" or the fluid may be more liquid and darker in colour—"black-water;" or this fluid may be brought up by retching and severe vomiting, in which case it is accompanied by much mucus and by the food in the stomach, which is generally a very sour or rancid, disagreeably smelling pulpy mass, with lumps of undigested meat in it. After a discharge of this kind, the patient feels relief, and goes on pretty well till his next meal, when the same thing takes place over again, or it may be only, perhaps, after the principal meal of the day.

Now, this form of dyspepsia may be combined with the next—morbid irritability of stomach; and it may be complicated with various sympathetic affections of other organs. These, however, will be considered hereafter in their proper place. Here I mean to confine myself to those cases which more strictly belong to the heading of this section; where, an hour or more after food, the gastric glands and follicles, excited by its presence, pour out an excessive and unhealthy secretion, and where this secretion, acting on the nervous ramifications in the mucous coat of the stomach, gives rise to all degrees of uneasiness, from simple acidity, through the various grades of heartburn, up to the most intense pain and cramp; and, acting on the muscular coat, gives rise to all degrees of expulsion of the contents of the stomach, from simple gaseous belchings, through the various grades of waterbrash, up to violent vomiting of the food and everything else.

The simplest case of this kind is where there is merely acidity at stomach, for which a little of any alkali may be given—Soda, Potass, or Magnesia—before meals, or when the acidity is felt. This produces perfect relief for the time; and if, after several days use of these, till the state of the urine becomes normal, we give the Carbonate of Potass or Soda, or the Liq. Potassa in Infus. Gentian, C.; or Infus. Columb., we will generally succeed in restoring a healthy tone of stomach, and a sound, vigorous, and healthy digestion, provided always that the patient be careful to avoid those articles of food and drink which his own experience has taught him are most apt to produce acidity. In such cases, Dr Seymour prefers a powder of Rhubarb, Columba, Cinnamon, and Carbonate of Soda, given before dinner, or at bedtime, for a fortnight.

Where the case is somewhat more severe, amounting to decided heartburn, the treatment is still much the same—alkalies to palliate uneasiness, and tonics with aromatics and occasionally sedatives, to restore tone and diminish irritability. The following are good formulæ:—

21. ℞ Inf. Gentian. Co. ℥ii. Aq. Calcis ℥ii. T. Hyoscyam. ʒi. M. two or three times a day.

No. 22. ℞ Aq. Calcis ʒvii. Sp. Ammon. Aromat. ʒss. T. Hyosc. ʒss. Carb. Magnes. ℈i. M. Draught twice a day.

Regular pyrosis is much more difficult to treat, and many different medicines may have to be tried, one after another, before a cure is effected; a great variety of them has, accordingly, been recommended by various authorities. Bismuth is, perhaps, the one which has the most numerous testimonies in its favour, and it very often, certainly, proves an excellent remedy, but it must be confessed, also, that it very often fails. I think it is most successful where the pyrosis is slight, where the quantity of ropy fluid is not very great, where it is ejected by expuition without effort, rather than by actual vomiting, and where it is of an acid character. Here six or eight grains of Bismuth, with as much Magnesia in Almond Emulsion, or any aromatic water, with a little Mucilage, two or three times a day, will often prove very efficacious. Dr Graves recommends 6 grains of Bismuth, and 10 grains of Magnesia, with 20 grains of Gum Arabic powder, to be put in a quantity of boiled milk, allowed to cool, and then to be stirred up and swallowed, two or three times a day; each dose of this kind to be immediately followed by $\frac{1}{16}$ grain of Mur. Morphiæ in a tablespoonful of water. I have repeatedly followed his directions; but I cannot say that I have found more good from the medicine so given, than when administered in the more ordinary and simple way. Where the quantity of pyrotic fluid is still small, but is ejected by vomiting, I am partial to a combination of Bismuth with Pulv. Columbæ gr. v. viii., given shortly before meals; and if the discharge be attended by pain or crampy feeling at the stomach, it is well to add $\frac{1}{8}$ or $\frac{1}{12}$ grain of Mur. Morph., or $\frac{1}{4}$ or $\frac{1}{2}$ grain of opium. I do not think that Bismuth has any effect in allaying that kind of pain which depends purely on morbid sensibility of the stomach;

but it certainly has very considerable effect in the pain of this form of dyspepsia, which depends on morbid and excessive secretion. Where this pain is severe, and where it is attended by cramp of the stomach, the following will be found to give great relief:—

No. 23. ℞ Ox. Bismuth. ℈ii. Carb. Magnes. ʒi. Pulv. Aromat. ʒss. Mucilaginus ℥i. T. Opii. ʒi. Aq. Cassiæ ℥v. M.

Two tablespoonfuls to be taken with an equal quantity of hot water, when the pain is severe, and repeated if necessary. Sometimes, however, in cases of this kind, the pain is so severe, and the cramps or spasms so violent, that it is absolutely necessary to give full doses of T. Opii., and repeat them every hour or two hours, till relief is procured.

In cases of dyspepsia, with excessive secretion, where the eructations or vomitings are not acid, but tasteless or rancid, or of a rotten taste, the acids do most good; the Nitric, or Nitro-muriatic Acid, or, what answers very well, the Acetic Acid, with half a drop or a drop of Creosote, given shortly before meals.

Where the quantity of secretion is very large—and it is sometimes almost incredibly so—we act as we do in other fluxes: we have recourse to astringents to check it. Dr Budd recommends Logwood as being most effectual in such cases; thus,

No. 24. ℞ Hæmatoxyli ℥i., Pulv. Cinnamom. ʒi., Aq. Bull. ℥x. M. Inf. per horas quatuor et cola—℥iss. two or three times a day.

My own favourite remedies in such cases, are the Pulv. Kino C., and the Nit. Argenti .I have not yet succeeded in discovering indications to guide me in prescribing the one rather than the other. I have sometimes fancied that I had done so, but by and by a case would occur, which showed me that it was nothing but a fancy, and scattered it to the winds. I find that I must just submit to be empirical in their use: I give the one, and if it does not do, I then try the other. Of the compound Kino Powder, 5 grs. may be given three times a day, either alone or with as much Bismuth, or Pulv. Columbæ, or both. The Nit. Argent. is given in pill, in doses of ¼ or ½ gr. three times a day, with or without ¼ gr. of opium; and I generally combine it with a little Pil. Rhei. C., and Extract of Taraxacum or Hop. The Oxide of Silver, I think inferior to the Nitrate in cases of pyrosis.

In obstinate pyrosis, Dr Burne recommended Calomel. gr. ss. with Opii. gr. ¼, to be given after breakfast and dinner for many weeks together, unless the gums became affected, when he omitted the Calomel, and continued the opium alone. Others have recommended the Powder, or Extract of Nux Vomica. Of these two plans of treatment, I should be inclined to prefer the latter.

In chronic cases of excessive secretion, unattended by any congestive action, and without much irritability of stomach, Tannin would probably be found useful; but I have not tried it sufficiently to enable me to speak with confidence of its effects.

6. *Simple Dyspepsia, with pain after food, with or without vomiting. (Gastralgia, Morbid Irritability of Stomach.)*

This is a very common form of dyspepsia, particularly among females. It might be called nervous dyspepsia. It is characterized by two symptoms, pain more or less severe, and vomiting more or less violent. In one patient, the pain is the predominating symptom; in another, the vomiting; while in a third, both are well marked, the pain coming on first, and continuing till it becomes intense, when vomiting succeeds, empties the stomach, and gives relief. These symptoms generally come on after meals, sometimes instantly, on swallowing food, at other times not for a quarter of an hour, an hour, or even longer. It is a common expression of patients, that if they could live without eating, they would be well. This, however, is not always the case; sometimes the pain and vomiting are experienced before breakfast in the morning, but in all cases, they are always aggravated after food, and equally aggravated after food of any kind, after the lightest of the farinacea, as after the strongest animal diet. In a case of simple nervous dyspepsia, the sensation at the epigastrium is one of pure pain, like neuralgia elsewhere, without heat, and without acidity. The tongue may be clean and even pale. If we press the epigastric region during the presence of the pain, it is increased—in other words, there is tenderness, but only during the presence of the pain, at other times pressure is perfectly well borne. By and by vomiting comes on, and the stomach may either at once and easily empty itself of its contents, or it may not succeed in doing so till after considerable retching. This done, relief is obtained, and the patient is well till the next meal. The food comes up as it went down, more or less digested, but perfectly pure and sweet, and without more than the natural mucus of the stomach being mixed with it. If the retching have been severe, there will of course be some bile along with it; but this is always the consequence of severe vomiting, and we should commit a great mistake did we, on this account, set the case down as "bilious," and treat it by Mercurial purgatives. As great a mistake would be, to refer the pain to inflammatory action, and treat it by leeching and sedative doses of Calomel. The appetite varies: it may be quite unaffected, or it may be more an empty craving at stomach than a healthy appetite.

When a case of this kind continues long, the patient is apt to become pale and nervous, and falls under the next head of our classification—anæmic dyspepsia with sympathetic disorder. Or from the first, it may be more or less complicated with acidity and excessive secretion; its own special character of morbid irritability being still, however, sufficiently predominant to mark its type and guide our diagnosis and treatment. Thus, we often see a case, where, immediately after a meal, the peculiar pain of nervous dyspepsia comes on, continues for an hour or more, and then ends with a regular attack of pyrosis and vomiting of a large quantity of its peculiar secretion ; or, without actual pyrosis, the pain may be combined with heartburn and acidity, and the vomited matters may be quite acid and sour. In short, the two forms may be variously combined, and apparently confused ; but a little care on the part of the patient in observing, and on the part of the physician in investigating, the symptoms—their combination and sequence—will sufficiently serve to show which form any particular case in the main belongs to.

In the simple form of dyspepsia from morbid irritability of stomach, where nervous mobility, or a kind of neuralgic irritation is the pathological condition, Prussic acid has the most decided good effects. It allays pain, prevents vomiting, and so blunts the morbid sensibility of the stomach, as to allow it duly to perform its function of digestion. It may be given in plain water, or Almond emulsion, or a bitter infusion, about a quarter of an hour before meals. I generally prescribe it thus :—

No. 25. ℞ Acid. Hydrocyanici (*Scheeles' strength*) gtt. xvi. T. Columbæ ʒss., Aq. Font. ℥iiiss. M.

A tablespoonful three times a day, increasing the quantity up to gtt. xxiv., which, of course, raises each dose of the acid from two to three drops, beyond which I rarely find it necessary to go. If, with the pain, there be also acidity or heartburn, it may be given thus:—

No. 26. ℞ Acid Prussic gtt. ii-iii., Carb. Sod. ℈i., T. Gentian. C. ʒss., Aq. ℥i. M. three times a day ;

and if the vomiting be severe or continued, the following draught will often be found effectual :—

No. 27. ℞ Acid Prussic, gtt. ii.-iii., Creosot. gtt. i.-ii.-iii., Liq. Morph. gtt. xx. Carb. Soda, gr. xx., Aq. ℥iss. M.

The Prussic Acid seems most applicable to those cases where the pain comes on very soon, or almost immediately,a fter food. And I think it is most useful, where the pain is the leading feature of the case, that is, where there is rather morbid sensibility than morbid irritability of the stomach. I think its power in allaying vomiting is more secondary ; that it does so by first obtunding the nervous sensibility of the organ ; at least, I have found it do more good where the vomiting is preceded by pain, than where it is not.

In simple vomiting of the food from atony of the stomach, Columba is an admirable remedy : either five or ten grains of the powder two or three times a day, or according to the following formula :—

No. 28. ℞ Infus. Columbæ, ʒvi., Liq. Potass. ℥iss., T. Humuli, ʒiii., Aq. Piment. ℥iss. M. One or two tablespoonfuls twice or thrice a day.

Perhaps the next best remedy to Prussic acid in this form of dyspepsia, is the Nitrate of Silver, or the oxide, $\frac{1}{4}$ or $\frac{1}{2}$ gr. of either three times a day, in pill.

When the pain is longer of coming on after a meal—an hour or more—the case still belonging to this same variety of dyspepsia, the utmost advantage will be derived from that most admirable prescription of Dr Abercrombie :—

No. 29. ℞ Sulph. Ferri gr. ii. Pulv. Aloes gr. i. P. Aromat. gr. v. M. Three times a day.

This is a medicine of the good effects of which, in such cases, it would be impossible to speak too highly; but it is so well-known that it is unnecessary for me to do more than thus simply add my own humble testimony to its merits.

In those mixed cases to which I have referred, of morbid sensibility and irritability of stomach, combined with pyrosis and excessive secretion, the Nit. Argent. often suits well, as it meets both points; or, what often suits as well or better, we may give ℞ No. 25 shortly before meals for the former, and then, when the latter begins to be felt after meals, use ℞ No. 23, as above directed.

In some cases which must be referred to this order of dyspepsia, wherein the only symptom was painful digestion, without vomiting, and without the heaviness and weight of slow digestion, I have found the following very useful :—

No. 30. ℞ Ext. Hyosc. gr. ii. Ext. Gentian. gr. ii. Ext. Stramon. gr. ss. Pulv. Opii. gr. ¼. M. Pill to be taken half an hour after meals.

In some such cases, too, I have found the combination of Prussic Acid with Morphia succeed, after it had failed given by itself: Thus,—

No. 31. ℞ Acid Prussi. gtt. xxxii. Liq. Mur. Morph. ʒiii. Mist. Amygdal. ℥viii. M. A tablespoonful three times a day.

The treatment of nervous dyspepsia often fails of success, not from any want of efficacy in the remedies, but from want of perseverance in the patient. As soon as the pain is relieved, and the vomiting ceases, the medicines are thrown aside. But this wont do; they, or at all events the tonic portion of them, must be continued till the vigour of the digestive organs be quite restored, or a relapse is certain to occur.

7. *Anæmic Dyspepsia, with Sympathetic Disorder.*

Any form of dyspepsia, if long continued, may, through the imperfect nutrition of the system which is its necessary effect, lapse into this variety; but it is a more frequent consequence of nervous dyspepsia than any other. At the same time, it must be borne in mind, that, though the dyspepsia may be the primary disorder, leading to anæmia secondarily, perhaps as often the anæmia is the primary affection, the dyspepsia and sympathetic affections of other organs being secondary to, and consequent upon it. As regards treatment, fortunately this makes little difference, as in almost all cases, if the system can be put to rights generally, a corresponding improvement will take place in the digestive and other organs locally.

For this purpose, the usual treatment of anæmia must be put in force: exposure to fresh air and sunlight, exercise short of fatigue, avoidance of all mental irritation, and the wear and tear of business, nutritious diet, with regular hours, and, in the way of medicine, some one or other of the preparations of Iron. The Sulphate answers well alone, or, if the bowels require assistance, combined with Aloes, as in Abercrombie's formula (℞ No. 29); or, in solution with Sulph. Quinæ and Sulph. Magnes. and the dilute Sulphuric Acid, or in pill with Quinine, Camphor, and the Ext. Aloes, with Ext. Hyoscyami. In females, where there is also amenorrhœa, I am very fond of giving 30 drops of the Tinct. Mur. Ferri, morning and evening, and a pill daily at dinner-time of the Sulph. Ferri Pulv. Aloes, and Ext. Conii, 2 grains of each. When the appetite is deficient, the Iron may be given with any of the compatible bitters, as Quassia or Columba. The Carbonate is a useful form, either in powder alone, or with Rhubarb and Columba, or in the shape of Griffith's mixture: some have recommended it as being most energetic when taken quite freshly prepared—in fact at the moment of precipitation, as in the following prescription:—

No. 32. ℞ Carb. Sodæ ʒi. Tinct. Columbæ ʒi. Aqua ℥iss. M. et solve, et dein adde T. Mur. Ferri ʒi. M. Draught to be taken twice a day.

In fact it is not a matter of much consequence what particular form the Iron is given in, so it be continued long enough. As a general rule it is best given shortly after meals. Those who can afford it may combine the advantages of travel and change of society with the remedial benefits of iron, by a temporary sojourn at a chalybeate spring.

Of the sympathetic affections concomitant with dyspepsia, disorder of the heart's action is perhaps the most frequent. One form of it is sometimes met with in bilious dyspepsia: the heart's action is slow, and labouring, and irregular: it sometimes seems as if it were going to stop altogether, giving a few feeble distant beats, the impulse of which does not reach the artery at the wrist, so that the pulse intermits; and then, after one or two instinctive and involuntary long-drawn sighs, it gives a violent thump, and goes on again. It requires no special treatment; it very soon disappears when all hepatic congestion is removed by the remedies proper to the circumstances. It is worthy of remark, however, that these circumstances are sometimes exactly reversed; obstructed circulation through the right cavities of the heart may be propagated backwards along the vena cava ascendens, so as to cause venous congestion in the liver, and give rise to "biliary" disorder, and even a jaundiced tinge of the skin. And we will find that, after relieving the loaded heart by a few leeches, and small doses of Antimony, Digitalis, Acetate of Lead, or the like, these symptoms will yield to very gentle mercurial alteratives; while, unless this is done, they will resist the most energetic treatment that can be prescribed. The lock wont be forced by any violence, but it opens at once to the right key!

A very similar affection of the heart sometimes attends long-continued stomach disorder from slowness of digestion, and yields to the treatment appropriate to that condition. It is generally only felt after meals, during digestion.

The reflex irritation of the heart, caused by excessive and acid or acrid secretions in the stomach is generally relieved by the antacids, absorbents, and aromatics, used for the relief of the primary malady. The Nit. Argent. is particularly applicable to many such cases. Where the irritability of the heart is such that its action continues troublesome, after the acid contents of the stomach have either been neutralized by alkalies, or ejected by the pyrotic flow or by vomiting, nothing answers better than a little Prussic Acid, with Tincture of Hop in Mucilage and Camphor Mixture, to which a few grains of Bismuth may often be added with advantage.

But it is in chronic cases of nervous dyspepsia, and particularly where there is also anæmia, that the heart is most liable to be sympathetically affected. In most cases, the gastric irritation travels backwards to the true spinal cord, and is thence reflected along the cardiac nerves to the heart; but I have no doubt that, in other cases, the source of irritation is centric, seated within the spine itself; for we meet with instances where both the epigastric and the cardiac affection seem truly to depend on what is termed "spinal irritation;" where both are brought on or aggravated by pressure over certain of the dorsal spines, and where both yield readily to a few leeches or a sinapism, or a blister applied over the tender vertebræ, without any other treatment whatever. This I have seen over and over again; and therefore it is well, in all cases of the kind, to examine the spine; and if we do find a tender spot, a few leeches, or cupping, or a blister over it, will very much expedite the cure.

One patient will complain most of palpitations and irregular action of the heart; another of pain in the region of the heart; and another both of palpitation and pain. The heart is irritable, easily excited, and its action is quick and hurried, irregular and tumultuous, often with visible impulse, though this impulse is rather diminished than increased in force. It is generally worst after a meal, though at all times the organ continues so irritable, that a start, or any slight excitement will bring on palpitation. When there is flatulence, it is always worse, and is then accompanied by a sense of oppression in the chest. Again, the pain may be seated at one small spot in the region of the heart, or more or less diffused over this region, or it may extend up towards the left shoulder, or even down along the inside of the left arm to the hand. It may be of any intensity—from oppressive dulness up to the most severe neuralgia. If the patient be anæmic, the breathlessness, etc., of this state will be superadded to an aggravated degree of the heart symptoms. It is of course necessary to have recourse to all the aids derivable from auscultation and percussion, in order to establish our diagnosis of the nature of the heart affection—whether it be functional and and sympathetic, or structural and organic.

For this form of heart affection, the two principal remedies are Iron and Nitrate of Silver; the former, where disturbed action of the heart is the main feature, the latter, where with disturbed action there is also pain. In the latter circumstances the Nitrate of Silver has an excellent effect: it may be given thus:—

No. 33. ℞ Nit. Arg. gr. iii. P. Opii. gr. iii. P. Rhei. gr. xii. Ext. Humuli gr. xii. M. Ft. Pil. xii. One three times a day.

To this internal treatment a belladonna plaster over the heart will be found a powerful adjuvant. These means will very generally relieve the painful feelings of the heart, and also materially diminish the irritability and excited action of the organ; and then the cure may be carried forward to its completion, by iron, and the other remedies appropriate to the condition of the digestive organs. Where there is no pain, these latter means (including the iron), may be commenced at once; but even in these cases, two or three weeks use of the Nitrate of Silver will do great good, as, in addition to its more specific virtues, it is an excellent tonic. Sometimes the Ext. Aconit. may be usefully substituted, in combination with it, for the extract of hop. Of course, in all cases, the bowels must be kept regular, and the diet attended to, bulky and flatulent articles of food being avoided. As to wine and stimulants in general, the patient must be guided by the effects they are found to produce. As a rule—at all events, at first—they do harm; they are not needed, and had best be avoided. Excessive smoking and snuff-taking have a very deleterious effect in these cases of irritable heart, and indeed, in dyspeptic disorders in general.

Various other organs are occasionally sympathetically affected in cases of dyspepsia; and dyspepsia is frequently itself but a portion of a more extensive disorder affecting various organs, or the whole system. Thus, we have various affections of the brain and organs of sense, various disorders of the urine, and sometimes, though more rarely, of the lungs, dependent upon indigestion; and *vicê versâ*, the stomach is often secondarily affected by cerebral and renal diseases, or suffers in common with other parts, in general diseases of the circulating fluids, or of the system at large, such as scrofula and gout. Here, as elsewhere, in medicine, we must never forget that, as some one has well remarked, disease is something more than a "chain of many links," of which, if a single one be broken, the strain of the whole chain is destroyed; that it is a "rope of many strands," so twisted and twined and interlaced, that to relieve its tension, the whole must be cut through. I cannot, however, enter upon the consideration of such extensive subjects as these, as they would lead me too far away from the immediate purpose of the present paper.

8. *Flatulent Dyspepsia.*

In almost all cases where there is irritation and diminished tone of the gastric mucous membrane, flatulence is a consequence to a greater or less extent; it is therefore a common symptom in the various forms of dyspepsia. But sometimes it is so great, as to constitute the most troublesome symptom, and the main feature of the complaint. In most cases the stomach relieves itself from time to time, by eructations or belchings, but in others, its muscular coat has so lost tone, that it is able to contract but very feebly, while at the same time there is spasmodic closure of the cardia and lower portion of the œsophagus, and then the epigastrium becomes swollen and absolutely tympanitic, the stomach is literally blown up with wind; in this distended state it presses upon, and obstructs the functions of the heart and lungs, and the patient suffers dreadfully, till at last an eruption of flatus takes place, and relief is procured.

Before prescribing specially for flatulence, as a symptom in any case of dyspepsia, we must ascertain whether or not there be any inflammatory action present. If there be, the proper remedies would be, swallowing small bits of ice, small doses of Nit. Potass, with Carb. Sodæ—in short, those recommended for inflammatory dyspepsia, particularly counter-irritation over the epigastric region. If the irritation be not of an inflammatory character, if other dyspeptic symptoms are absent, or slight, and if the stomach be able to relieve itself by eructations, we will effect much good by the following mildly aperient and carminative powder:—

No. 34. ℞ Pulv. Gregorii, P. Aromat. *aa* ʒss. M. Half a teaspoonful twice or thrice a day, stirred in a little hot water.

But in order to give permanent relief, we must regulate the bowels, and strengthen the digestive organs by tonics, combining them with carminatives. I find the following answer very well:—

No. 35. ℞ Asafœtidæ gr. xxxvi. P. Rhei. gr. xii. Ol. Cajeput. gtt. xii. M. Ft. Pil. xii.

No. 36. ℞ Infus. Chirettæ ℥xi. Tinct. Zingib. ℥i. T. Hyosc. ʒii. M. Two of the pills to be taken every night at bedtime, and two tablespoonfuls of the mixture morning and mid-day.

Where the air collects in such quantities as to distress the patient by the tympanitic distension, caused by its accumulation and retention in the stomach, I know no better means of relief than applying a hot flannel sprinkled with turpentine over the epigastrium, and giving, at the same time, half a teaspoonful of powdered ginger in about 4 ounces of water, as hot as can be swallowed. This very rarely fails to give speedy ease by abundant eructations of wind. The seldomer indeed it is had recourse to the better; but in urgent cases it must be done; and the necessity for its frequent repetition will be much diminished by putting the patient in the intervals, upon some such treatment as that just recommended (℞s. No. 35, 36), and at the same time giving an occasional dose of Ol. Terebinth. with Ol. Ricini—℥ss. of each—an hour before getting up in the morning, so as to act freely on the bowels.

Too long fasting, gulping down food in a hurry without chewing it properly, and eating immediately after exercise or fatigue (whether bodily or mental), are points specially to be shunned by flatulent patients. The effect of the various articles of diet must be also strictly watched, so that they may "choose the good and avoid the evil;" and in general it is well to allow them a little brandy and water, or good sound sherry and water, in the midst of, or immediately after, the principal meal of the day.

Note.—The reader is requested to make the following corrections of errata in the former part of the above paper, in the September number of the Journal :—viz., in

℞ No. 12. Page 216.
For Ext. Tarax. ℥i. . . . read ʒi.
„ Inf. Columb. ʒss. . . . „ ℥ss.
„ Inf. Sennæ Co. ʒss. . . . „ ℥ss.
„ T. Cardam. Co. ℥i. . . . „ ʒi.
In ℞ No. 15. Page 217.
For T. Cinchon. Co. ʒiss. . . . read ℥iss.
„ T. Columb. ʒiss. . . . „ ℥iss.
In ℞ No. 20, Page 220.
For Ext. Tarax. ℥ss. . . . . read ʒss.
„ "One" . . . . . „ "Two."

Part Second.

REVIEWS.

The Diagnosis of Diseases of the Brain, Spinal Cord, Nerves, and their Appendages. By J. RUSSELL REYNOLDS, M.D., London, Assistant Physician to the Hospital for Sick Children, etc., etc. Pp. 251. London 1855.

THE object of this work, we are told by the author in his preface, is not an elaborate examination of the relations which subsist between structural changes and morbid functions, or the establishment of a true system of pathology by a detailed natural history of disease. For such information the reader is referred to the works of Lallemand, Bouillaud, Andral, Marshall Hall, Valleix, Louis, etc., etc. But, as many have neither the leisure nor the inclination to wade through the voluminous writings of these authors, Dr Reynolds has undertaken the present work "in order to supply a deficiency which he felt when at College himself, and which others have often expressed to him since, and to place within the reach of the student's time and the practitioner's leisure, those facts which have been elicited by others and by himself, so far as they bear upon the diagnosis of nervous diseases." The present work differs from others treating of diseases of the nervous system, in being limited to diagnosis only. But its principal feature is the manner in which the diseases are classified. Confining himself, as he does, to diagnosis, our author has to do with symptoms only, and these he takes as the basis of his classification. There is no division of diseases into organic and functional; on the one hand he discards pathological anatomy as affording a basis for one class of diseases only (the organic); while on the other, he declines a purely physiological or dynamic basis, as necessitating the description of every modification of function, *per se*, which would render diagnosis a very cumbersome and complicated proceeding. The classification followed by Dr Reynolds is based on "*clinical grounds*," and its scope is defined as "The discrimination, where possible, of the point of contact between the anatomical and pathological elements of disease, and the recognition of its impossibility where such impossibility exists."

The objects of diagnosis are stated as three in number, 1*st*, The locality of the affection; 2*d*, Its nature, and 3*d*, Its anatomical conditions; and these present the "three problems of which the present treatise is intended to offer a solution." These "problems" are thus stated by Dr Reynolds:—

"1*st*. Given a certain group of phenomena, to find the organ or organs affected; in other words, given the symptoms, to find the locality of the lesion.

"2*d*. Given the symptoms and organ affected, to find the nature of the affection.

"3*d*. Given the symptoms, locality, and nature of the affection, to discover its anatomical conditions."

Chapter first is devoted to an exposition of these problems as regards their scope, and the manner in which they may be brought to bear, practically, on diagnosis in general; and as Dr Reynolds handles this part of his subject both in a sensible and philosophical manner, it deserves a somewhat full notice at our hands.

In discussing the first problem, "Locality of Lesion," the author retains the old divisions of the nervous system into encephalon, spinal column, and nerves; among the affections of which, the earliest distinction that is to be drawn is between the *extrinsic* and *intrinsic*, "The former denoting all the collocations of nervous symptoms, which depend upon some general morbid condition, should such be undiscoverable in them, and not till then, infer the existence of disease of the nervous system itself. We then consider the various symptoms or combination of symptoms which indicate, with more or less certainty, the part of the encephalon, spinal cord, or nerves, which is affected in any individual case." The "locality of lesion" is thus determined by (*a*) the special quality of the symptoms, *i.e.*, the existence of morbid changes in a particular function or group of functions, which are at once referrible to (because the functions are the proper action of) a certain organ or part of an organ. Thus, mental changes are referred to one, emotional to another, and sensorial to a third portion of the nervous centres; (*b*) the topographical distribution or limitation of the symptoms; for example, the unilateral or bilateral distribution of paralysis."

The second problem, viz., "Nature of the Affection," affords the author the opportunity of dividing diseases into two classes, the acute and the chronic; and at the same time necessitates a definition of the term *disease*, which he states correctly and concisely, thus,—"The term 'disease' may be viewed from two 'stand points.' 1*st*, It may mean the morbid phenomena and processes which are present, or the modifications induced in the functions of life; and in this sense it is merely a general expression of the group of symptoms. 2*d*, It may mean, on the other hand, the cause of these morbid phenomena, the organic conditions on which they depend, or the physical (anatomical) lesion which underlies the symptoms.

"The general agreement between symptoms produced by dissimilar physical lesions of the nervous system, and their frequent disagreement when arising from apparently similar causes, show that we have not yet arrived at a correct appreciation of the point of contact between the two; at the same time, they lead us to believe that it is not so much the nature of these physical changes, as their degree and mode of induction, which determines the result. If the future progress of pathological research should effect the harmonisation of these two categories of disease, it has failed to do so up to the present time; and it is more consistent with truth to maintain their separation, pointing out, wherever and whenever we can, the places in which one may impinge upon the other."

The third problem, viz., "Organic Condition," is determined, not from the particular character or distribution of the symptoms, so much as from "(*a*) their order of development; (*b*) their proportion to each other; (*c*) from many extrinsic conditions; (*d*) from certain physical signs; (*e*) from the application of general pathological laws." "The pathological anatomy of the nervous system being, during the life of the patient, a matter of inference only; the inference in many instances is attended with great doubt, owing to the large number of subjective symptoms with which we have to do. Still, in many cases we can arrive at approximative certainty as to the static condition of the parts implicated. At the same time, the nervous organs may be healthy, *i.e.*, so far as the present means of observation enable us to decide the point. There are many diseases in which there is no reason to believe that the nervous centres undergo any static or physical change, although, during life, these may be most marked and important symptoms (*e.g.*, in epilepsy, chorea, neuralgia); and it is not unphilosophical to believe in the existence of morbid functions without demonstrable physical lesion, since the material world presents us with similar relations between the static and dynamic properties of matter."

These extracts will give the reader some idea of Dr Reynolds' *principles;* let us now glance at the manner in which he handles "the elements of diagnosis," so as to render them applicable for clinical purposes.

As already noticed, Dr Reynolds divides the diseases of the nervous system into three classes, according to their locality. 1*st*, Those of the encephalon; 2*d*, Those of the spinal cord, and 3*d*, Those of the nerves.

As each of these divisions is treated of on the same principles and after the same manner, we will confine ourselves, for example of Dr Reynolds' method of arranging the different diseases, to the first division, "Diseases of the Encephalon." These are divided into two classes—the acute and the chronic. A, the acute, divided into, 1*st*, febrile or inflammatory diseases, chap. vi.; 2*d*, the non-febrile, subdivided into (*a*) apoplectic diseases, chap. vii.; (*b*) diseases marked by delirium, chap. viii.; (*c*) convulsive diseases, chap. ix.; and (*d*) diseases marked by pain, chap. x. B, chronic diseases, chap. xi., divided into three groups, 1*st*, those marked by increased activity, (*a*) of ideation (hallucinations); (*b*) of sensation (pain); (*c*) of motility (spasm) chap. xii.; 2*d*, those marked by diminished activity, chap. xiii.; 3*d*, those marked by a combination of increased and diminished activity, chap. xiv.

Under one or more of these heads, all diseases of the encephalon are arranged and described, not according to their names (although Dr Reynolds has very properly retained the old names of diseases), but according as they are marked by convulsion, delirium, apoplectic symptoms, and so on. Most of the diseases of the encephalon range themselves readily under one or other of the above heads. But there are many which are characterised by a variety of symptoms, some of which are referrible to one, some to another, and some to a third of the above heads. In such cases, Dr. Reynolds' system necessitates the description of the disease under two or more headings, which plan, unless very carefully and judiciously carried out, is almost sure, besides taxing his patience, to confuse the reader by a two great splitting up of description. What would a staunch old nosologist, for instance, say, on turning up our author's index in order to refresh his memory on acute softening of the brain, when he found that disease described in four different chapters, in each of which it is associated with a variety of diseases with which, to his apprehension, it has nothing in common save a few symptoms, and even these of variable occurrence. Before he can get all the information which our author has to give him on acute softening, he has to turn to chap. vi., "On acute febrile or inflammatory diseases," then to chap. vii., "On apoplectic diseases;" to chap. viii., "On diseases marked by delirium," and lastly, to chap. ix. "On convulsive diseases;" and this because acute softening is a disease generally inflammatory in its nature, often marked by apoplectic symptoms, sometimes accompanied by convulsions, and sometimes by delirium. Dr Reynolds' description of acute softening is, nevertheless, a good one, and very readable, once we are a little familiarized with the system.

Chap. vi., "On the differential diagnosis of acute febrile diseases affecting the brain," includes meningitis, simple tuberculous, and rheumatic; hyperæmia; cerebritis; mania of febrile type; delirium tremens, of febrile type; continued fever, with cerebral complication, and gastric remittent fever of children.

It is unusual to meet with any but incidental notices of such diseases as continued and gastric remittent fever in works on nervous affections. It is in accordance, however, with Dr Reynolds' system, that all diseases which may be attended, in any part of their course, by nervous symptoms, are to be treated of, in so far, at least, as their differential diagnosis is concerned. Thus we meet with rheumatism, anemia, urinemia, and other diathetic conditions, morbus cordis, the exanthemata, etc., etc.; these and other such affections are for the most part treated of, each once or oftener, under distinct headings; and although Dr R. has generally confined himself, as much as possible, to the consideration of the nervous element in each, still, so many divisions and subdivisions, render his book, upon the whole, less readable than it otherwise would have been had all these extrinsic affections been treated of in a more general way in a chapter by themselves. The same tendency to too great subdivision is observed even among these affections which are marked by almost exclusively intrinsic symptoms. Thus, we find delirium tremens included among the acute febrile diseases of the encephalon, chapter vi., "because its symptoms sometimes assume a febrile development" (*i.e.*, because there is vascular excitement); and again, the same "disease" is fully treated of "in its more common form" (*i.e.*, with diminished vascular excitement or asthenia), in chap. viii., devoted to "diseases marked by delirium." We think such divisions quite unnecessary, even on Dr Reynolds' own principles of classification, for if there be one disease more than another which has one leading symptom as its characteristic "element of diagnosis," it is delirium tremens. The delirium, *the* nervous symptom, depends neither on increased vascular excitement, nor on diminished vascular excitement; it has sometimes the one, sometimes the other, sometimes neither as its concomitant. To make the presence or absence of vascular excitement, therefore, an occasion for describing and treating of a disease—more especially the one in question—under different heads, is, we think, making a bad use of symptoms, and is but an indifferent application of the "elements of diagnosis" for clinical purposes. Dr Reynolds has dedicated his book to Marshall Hall, whether or no his excessive love for subdivision of subjects has anything to do with this we cannot say, but we hope to see this tendency less marked in future editions. We have had much pleasure in perusing Dr Reynolds' work. The plan followed is that best adapted for a philosophical arrangement of diseases of the nervous system, and Dr Reynolds has brought it nearer to perfection than any author we are acquainted with.

On the Nature, Signs, and Treatment of Childbed Fevers. By C. D. Meigs, M.D. Philadelphia, 1854.

We have great pleasure in calling the attention of our readers to this work of Dr Charles Meigs. A few months ago, we had occasion to be rather severe in our criticism of a small work by the same author. The present is upon one of the most difficult subjects in obstetrics, and we feel bound to say, that as a whole, it is superior to any other work on the same subject. The language of it, retaining the old peculiarities of the author, is cropped of all outrageous abuse of words, and is a fair specimen of a very novel style for a medical author. The morbid anatomy of the disease might, we think, have advantageously occupied much more space than is allowed to it. But the long discussion on contagion of puerperal fever, is very able and complete.

We have little doubt that his observations on this subject will be much valued by the profession. They will help us to discover the proper conduct for the physician in managing such cases, occurring in the ordinary course of practice, while they will at the same time afford some excuse to the holders of the extreme contagionist doctrines for the incongruities between their doctrines and practice; doctrines, it may be remarked, almost totally inconsistent with the daily practice of all accoucheurs. Having quoted several authors to shew the meaning of the word "contagion," Dr Meigs adds:—

> "I think the above citations may suffice to show that whenever you use the word contagion as of contagious diseases, you imply disorders, produced, whether by means of actual contact of persons or by means of effluvia, nebulæ, or halos, which, evolved by an individual, and enveloping him like an invisible mist, may be carried by him from place to place; or surrounding, or adhering to clothing, etc., may poison other people, and so reproduce, not all sorts of diseases, but the very same sort of disease which gave rise to it in its specific nature and attributes. If you will use the word contagion, I think you are bound to restrict it to its real sense and meaning.
>
> If, as some pretend, childbed fever is a fever indeed, and not a mere topical inflammation that gives rise to febrile phenomena by means of the irritating power of the local disease, there might remain some chance of a probability that such an affection should be a contagious one. I know not what ideas you may have imbibed upon these points, but it is the object of this work to prove that childbed fever is a simple state of inflammation in certain tissues of pregnant women, and of women lately confined, and that the fever that attends it is a natural effect of intense constitutional irritation from the local disorders. So far as I have been able to investigate the subject by reading and by clinical observation, as well as by necroscopic researches, I rest deeply convinced that the fever does not take the initiative, except in very rare instances; but on the

contrary, that an area of inflammation being first established, the reactions ensue thereupon; and I beg you here to observe that, in all the truly contagious disorders, the constitutional affection leads the train, and brings on the topical lesions after an indispensable preliminary incubation."

After pointing out at great length the numerous high authorities against the contagion of puerperal-fever, and also the well-known facts in regard to the inoculability of puerperal women, by the practitioner, with various morbid poisons, such as are found to attach to the fingers after *post-mortem* examinations, and handling of discharges, he enters on the question:—

"Is there such a thing as a childbed fever? To this question I am compelled to answer in the negative; wherefore, I must consider the word a false and misleading one, since it implies that the disorder is a fever, when, in fact, it is not a fever, but a phlegmasia, or pure inflammation. Hence, I say, the word childbed fever is a false and deceiving word, which ought to be banished from our medical vocabulary. But how can this be done? Who hath authority to do this great thing? Assuredly not I; and I know full well, there is not a man in the whole world, of influence and power so great as to change the habits and convictions of society, on any one subject, even the uses of a word; and of all things, none is more difficult to change than language, which goes on to be repeated from age to age, by habit, even against conviction."

"The disease called childbed fever is:—

1. Inflammation of the Womb—Metritis.
2. " of the Uterine veins—Metro-phlebitis.
3. " of the Peritoneum—Peritonitis.
4. " of the Ovaria—Ovaritis.
5. It is all the foregoing disorders united in one case, or any two or more of them combined together."

It would lead us into a longer description than we are at present inclined for, to decide whether Dr Meigs is rash, or only bold, in his practice. He says,

"I have practised midwifery for many long years; I have attended some thousands of women in labour, and passed through repeated epidemics of childbed fever, both in town and in hospital. After all this experience, however, I do not, upon careful reflection and self-examination, find the least reason to suppose I have ever conveyed the disease from place to place, in any single instance. Yet for many years I carefully considered whether such transfer, by a third person, might be possible, and carefully read the statements of various authors to that effect. In the course of my professional life I have made many necroscopic researches of childbed fever, but did never suspend my ministry as accoucheur on that account. Still, I certainly was never the medium of its transmission.

"I have, in numerous instances, gone from the bedside of women dying with childbed fever, whether sporadic, or to the most malignant degree epidemic, without making my patients sick. I have also endeavoured to assist my brethren, when they had such cases and I had none.

"I did not then, nor should I now, fear to be the medium of transmission. But I have been unceremoniously set aside, after having been for months engaged, even for some who owed me impayable gratitude for the services I had for years rendered them. And this treatment I got, not because I merited it, for I did not merit to be regarded as a private pestilence, nor was I found to be so, in fact, by those who had more good sense, or who could appreciate the feelings with which a physician finds himself to be looked upon as a peripatetic pestilence, or poisoner of women for love of gain, or what is worse, stupidity.

"In a series of labours, 468 in number, and beginning with No. 1, I find that Nos. 18 and 19 were affected, and that No. 18 died with childbed fever; No. 31 was sick, but recovered; Nos. 195 and 259 were sick and recovered; but No. 291 died, as did also 293. Nos. 332, 339, 435, 444, 445, and 455 were attacked and recovered. The above cases, viz: 18, 19, 31, 195, 259, 291, 293, 332, 339, 435, 444, 445, 455, are in all 13 cases in 468 labours, of which three died and ten recovered. Now, if I was the medium of contagion for any one of that series of 468 confinements, why did I poison them in the ratio and order above set forth; and why did I not communicate the disease in more than 13 out of 468 cases? What became of my nebula from 31 to 195; to 259, and between 291 and 445, and so to the end, or 468? Such a table is far more easily explained by regarding the falling out of the cases as coincidences and accidents, than as material causations through a "private pestilence."

Dr Rutter's experience we shall merely quote. It was lamentably different from that of Dr Meigs:—

"What will you say, young gentlemen, of the experience of my friend, Dr D. Rutter, formerly of Philadelphia, but now of the city of Chicago, who passed through terrible scenes here in an epidemic of childbed fever some years ago, when he had a most extensive midwifery practice in town and country—I pray you, refer to my *Letters to the Class*, 3d edit. p. 591, for what I have there related on this subject. During that sad time, I saw several fatal cases with him, in consultation; and, though he seemed to be tracked by the cause of the disease, to judge by the numerous attacks of it in his lying-in patients, I was not tracked by it; I took no precaution, except such as every decent man should be supposed always to take; yet I never did carry the disease from his cases to any house where I visited lying-in women. But he was charged with being a carrier of contagion. How could he carry the cause? What was the cause—was it some ozone that stuck to his hands or coat? Was it a nebula, a halo, or an effluvium, or a miasm that mixed with the hairs of his head, or the woollen or cotton fibres of his dress; or an exhalation from his skin, or a halitus from his lungs, like the fiery breath of Cacus? and can you say of him, as Virgil sings?—

"Faucibus ingentem fumum, mirabile dictu,
Evomit?"

Æneid, Lib. viii. p. 252.

"Come, now; was not such a poison more sticky than bird-lime, seeing that Dr Rutter, worn out with fatigue, and wounded in spirit by his cares for the unfortunate victims of an epidemic disease, left the city for the purpose of regaining some strength, and to escape from the repetition of such disheartening labours, and that even a quarantine could not liberate him from this poisoned cloud! One might hope it would have been blown away by the wind, or that it would have evaporated, or become too dilute to kill, after a ride of seventy miles, and an absence of ten days! But it happened, after this rustication of ten days, at a distance of thirty-five miles from the city, that your birdlime, or cloud, still adhered to him, as you contagionists would say. And more than that, he could not even wash it away, or shave it off; for, upon coming back to the city and to his professional toil, before he engaged in practice again, he caused his head to be close shaved; he entered a warm bath, and washed himself clean; he procured a new wig, new clothes, new hat, new gloves, and new boots. He did not touch anything he had worn, and took the precaution even to leave his pencil at home, and his watch. Well, what do you think happened next? He went out to attend a lady in labour, who had a favourable parturition; yet was next day assailed by a horrible childbed fever, of which she died, in spite of all his efforts, and mine, to help him; for he called me in consultation immediately after being himself summoned to her chamber. I know that that lady died with peritonitis. I was a great deal with her in the illness; but she did not poison me, nor my clothes; for, though I went on with my practice, I poisoned nobody, and made nobody have even so much as a finger-ache!"

The inoculability of a patient, per vaginam, with a morbid poison, is well illustrated in the following extract. It commences with a quotation from Dr Campbell's work on the fever:—

"In the autumn of 1821, he attended the dissection of a married woman, who died of the disease, after an abortion of the early months; removed the pelvic viscera and external parts, and carried the whole, in his coat pocket, to the class-room. The next morning, *dressed in the same clothes*, he assisted, with some of his pupils, in an instrumental delivery at Bridewell. This woman was seized with the same affection, and died. The same night, he accompanied Dr Orr to the delivery of a woman residing in the North-Back of the Canongate; she was equally unfortunate, and three other poor women shared the same fate in quick succession.'' In a subsequent year, 1823, he assisted at the dissection of a childbed fever case, but 'did not wash his hands with the care he desired.' Thence he went immediately to attend two other women in labour, both of whom died. Do you remember that Bichat died from looking into a jar in which he had an anatomical specimen macerating, and that Prof. J. S. Dorsey, of the University of Pennsylvania, lost his life from a like cause? No man ought to carry home viscera in his pocket, and wait on sick women in the same clothes. This I admit most cheerfully. Dr C., however, did not long continue to be a 'private pestilence.' I repeat, that in epidemic seasons the cause of childbed fever exercises a sort of dictatorship over women; and whether you bring on fever by fatigue, by burns, by cold, exposure, improper diet, or by whatever cause, including this inoculation, it becomes this very childbed fever—it could become nothing else. If the disorder arises from a laceration of the uterus, it is no more true to say of it, it is contagious, than when it arises from a dissection virus. Such dissection virus may kill a man or a virgin, as well as a lying-in woman, but it could not give either of them a childbed fever. Is not this a reasonable and just discrimination? Does it leave any ground on which to found the belief that a man may carry a nebula for weeks about his person, or radiate, *ad distans*, so virulent a poison?''

Dr Meigs winds up with the following passage, which appears to us to assume the questionable points on this subject as proven, with a degree of assurance we cannot feel. But its general tenor is commendable:—

"Dr Fleetwood Churchill has referred to Alex. Gordon's cases; to Gooch's instances; to the cases at Sunderland, where 40 out of 53 persons came into the care of one single surgeon; to Mr Roberton's examples, as above; Dr Pierson of Salem; to Dr Condie's belief; and to Peddie, Beecroft, Copland, and Campbell. As all these instances put together do not confirm, or even strengthen the instance given of Dr Roberton's nurse, Mrs *x*, I shall not load my book with them. You can, if you please, explore these evidences, called by Dr Churchill proofs, at your leisure, and found your matured opinions upon the fullest and most searching inquiry. I will make, however, one remark in connection with what Dr Churchill, and others, have said about the 'utmost care and caution,' and it is this: If obstetricians do, in fact, carry the poison of childbed fever with them, there is really, it appears to me, only one step for them to take, and that is, to abandon the study and practice of Midwifery altogether. It is idle to make a rule, as some scribblers propose, of desisting from practice for a week, or a month. There can be no use in a quarantine, when the law of the contagion is wholly unknown; and if a physician is to have 12 cases per annum, one breaking out on the first day of each month, to quarantine him for 30 days each, he will be a person of but little use to the community as a practising accoucheur. It would be better to quit at once and for ever, and leave the women to take care of themselves, or refer their wants to the Shiphrahs and Puahs, who, after all, might haply turn out to be veritable Mrs *x's*, or gentlemen-pestilences, and so develop an epidemic as fatal and general as that of Manchester in 1851.

"Most assuredly, could I but once bring myself to believe in the contagion of childbed fever, I could never afterwards be induced to practise my Art. All the malignant assaults on us in the volume of Elizabeth Nihell, and all the objurgations uttered against us by the good old priest, spoken of by Dionis, *Traité générale des Acc.*, Paris, 1724, p. 427, could not so much influence my conduct, in this regard, as a momentary doubt of the transferability of this mortal disease. I utterly reject and deny it; and, of course, I shall not be distressed because two very young gentlemen say, "We think the contagiousness," or, to use the more explicit term used by Dr Christison, the "communicability" "of childbed fever, in all its forms, is a fact established on the most irrefragable evidence; so much so, that it would now be almost criminal for any practitioner to act on the opposite assumption." *Vide* McClintock and Hardy, *Pract. Observations*, p. 29. To all which I have only to add, *Voilà comme l'on écrit l'histoire!* What is the precise difference between being "*almost criminal*," and very criminal indeed?

"But alas! gentlemen, nurses are as fell in their poisoning qualifications and nature, and are as prone to become "private pestilences" as we abused physicians; and as the women will require some aids, some skill, some science in their many troubles, what are they to do? Twenty-five centuries have hardly served to lift our obstetricy from the depths of barbarism and ignorance, into that somewhat dawning light it now enjoys, as I have already shown in these Letters. And shall we now go back again to the capabilities of a Celsus, or an Avicenna, or an Avenzoar? Or shall we rather disregard the jejune and fizenless dreamings of sophomore writers, who thunder forth denunciations, and would mark, if they might, with a black and ineffaceable spot, the hard-won reputation of every physician, who, in the Providence of God, is called upon to contend with the rage of one of the most destructive of epidemics, and pay an ungrateful service; indispensable to the victims it is allowed to attack, and in the propagation of which they have no more to do, than with the propagation of cholera from Jessore to San Francisco, and from Mauritius to St Petersburg.

"Let us then decide—I have long ago decided for myself to go on. Will you go on, or will you stop here? Is contagion a truth? Then, for heaven's sweet sake, I implore you not to lay your impoisoned hands on her who is committed to your science, and skill, and charitable goodness, only for her safety and comfort, and not that you should, after collecting *fees*, soon return her to her friends a putrid corpse. What a horrid idea!"

Mittheilungen aus der Pfeufer' schen Klinik: *Epidemische Cholera.* Von Professor BUHL. *(Henle's Zeitschrift für Rationelle Medicin.* Band VI. Heft. I.*)*

Contributions from Professor Pfeufer's Clinique: Epidemic Cholera. By Professor Dr BUHL.

ALTHOUGH the subject of cholera has been discussed in the medical periodicals of this and other countries, *usque ad nauseam*, we must admit that we still know very little about what constitutes the real essence of the disease, and as little about what are the proper means to be used for its successful treatment. But the fruitlessness of our investigations hitherto, should not deter us from still vigorously prosecuting our researches into its pathology and treatment; for although we ourselves may never be privileged to discover the *arcana* of this mysterious disease, it is surely consolatory for us to think that we are treasuring up, in the vast storehouse of medical literature, the materials from which our successors may, in later years, construct, and upon which they may rear the superstructure of a sound system of its pathology and therapeutics. Like David, we should collect the *materiel* and the treasure, even though it be not ours, like Solomon, to build the gorgeous temple therefrom. Let us bind round our necks, like a phylactery, the maxim inculcated in the poet's words:—

"Learn to labour and to wait."

One of the most complete of the many excellent contributions which have recently been made to our medical literature, emanates from Germany, and consists of a series of elaborate and minute observations made, in a most masterly manner, by Professor Buhl of Munich, during the last visitation of cholera to that city. The materials at the disposal of Buhl for making these investigations were most ample, as, during the months of August and September, when the disease was epidemic, there were 304 cases of cholera admitted into the wards of the hospital. The completeness, and, on some points, the novelty of these observations, have induced us to lay a brief analysis of them before our readers. For we are convinced that it is well ascertained *facts*, and carefully recorded observations, which we need at present to elucidate the disease, not vague suppositions and dreamy hypotheses. "The literature of cholera," to quote the words of a recent author,[1] "is a painful instance of the fact that medical authors of late years have been in the habit of writing more for the love of fame than for the love of truth; they have been more prone to theorise on erroneous and suppositious data, than dispassionately to sift the accuracy of those data, and apply themselves patiently and unostentatiously to the mere observation of *facts*. By the latter means alone can we ever hope to arrive at scientifically true and practically useful views of cholera, or of any similar subject."

The disease, during the epidemic in Munich, was generally ushered in by a premonitory diarrhœa, lasting from half a day to three days, rarely longer. Diarrhœa is peculiarly liable to merge into true cholera during the prevalence of an epidemic, and the danger of this transition has been found to increase in proportion to the age of the patient. Our author found that the attack of the disease, in seven-tenths of all his cases, occurred during the night—generally about midnight; and that in the remaining three-tenths, the seizure took place between noon and evening. In three cases only was vomiting absent; it generally occurred immediately after the diarrhœa. The vomited matters consisted, at first, of undigested food, and thereafter of watery fluid, mixed with the water and fluids which were drunk. At first, these ejecta were acid in reaction, but they afterwards became neutral, and even alkaline; and no traces of biliary colouring matters were discovered in them. He says that the colourless neutral fluid vomited, may often contain no solids whatever, but it is sometimes mixed with a sediment, which is frequently nothing but pure chyle. Like Dr Lauder Lindsay, and other observers, he found in it starch corpuscles; cells of the epidermis and medulla of plants; fasciculi of muscular fibre; fat in the form of globules and crystals, etc. He rarely observed cylindrical epithelium, and never found any amount of pavement epithelial cells from the throat and fæces. The mucus in the vomited matters had often a dark brown colour, which was caused by the extravasated blood in it becoming changed; but he never witnessed true hæmatemesis.

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[1] Dr Lauder Lindsay, medical superintendent of James Murray's Royal Asylum, Perth. The series of papers on cholera, by this gentleman, which appeared lately in the *Edinburgh Medical and Surgical Journal*, and in the *Association Journal*, are the only recent contributions to the literature of cholera published in this country, which can be at all compared, for minuteness and carefulness of investigation, to those of Professor Buhl.

The choleraic diarrhœa was distinguished from the premonitory diarrhœa by the rapidity with which the dejections succeeded one another. He examined microscopically the whitish flocculi which float in the rice-water stools, and found them to consist of cylindrical epithelium, existing as isolated cells, or of coherent shreds; and often in the form of the entire uninjured covering of the intestinal villi; and sometimes present merely as granules embedded in masses of mucus. He observed bloody stools in four cases only, and these never occurred before fifteen hours after the seizure. In recently voided stools, he discovered abundance of crystals of the ammoniaco-phosphate of magnesia, also fungi of various kinds, especially in the pellicle which formed after the evacuations were allowed to stand for some time. Vibriones were rarely seen.

After detailing the chemical characteristics of the choleraic stools (concerning which there is nothing particularly new brought forward), he proceeds to describe very minutely the symptoms of the disease, with which, unfortunately, we are too well acquainted. He devoted peculiar care to making observations of the temperature in cholera patients, and the results of his researches prove very distinctly that the temperature in the cyanotic stage is very considerably higher than is generally supposed. His investigations were conducted with the centigrade thermometer, and as this thermometer rises very slowly, he took from half an hour to an hour in making each observation, in order that all sources of fallacy might be avoided. He found that the average temperature in the axilla was 35°·5—36°·5 C., that is, only 1°.5—2° below the nominal standard. The diminution of temperature is always in proportion to the amount of cyanosis; the bluest parts are the coldest, and *vice versa.* The hands, feet, point of the nose, chin, and ears, are the parts which first become cold; then the cheeks and lips, the elbow and knees, the chest, and last of all, the abdomen. The tongue also becomes quite cold. The skin is moist and clammy, like that of a frog, in those cases which prove rapidly fatal. The skin emits a peculiar odour, which Hammernyk found to be urinous. The general sensibility of the skin in this stage is much impaired, although there is distinct hyperæsthesia of particular parts.

Our author next gives very interesting particulars as to the condition of the muscles in cholera. The loss of voice, or vox choleraica, is due to the laryngeal muscles being affected; and, according to him, the general spasmodic condition affects the iris and occasions contraction of the pupil of the eye. The action of the heart continues feeble till the last. "The assertion of various authors," says he, "that only one of the cardiac sounds is audible (according to Canstatt only the diastolic, and according to Gunsburg, Reinhardt, and Leubuscher, only the systolic), must be taken with very great reservation. Numerous examinations have satisfied me that in nine-tenths of all cases, *both sounds are heard with equal distinctness.*"

The diastolic sound was often heard by him like a short bellows murmur; and in one case he detected a distinct but faint pericardial friction sound. The radial pulse is small or imperceptible, and its average frequency, according to Buhl, is from 80 to 100 in males, and from 90 to 120 in women. When the pulse is imperceptible at the wrist, he says that it may often be felt distinctly in the carotid or femoral arteries. The respirations are laboured and irregular, and their average frequency is from 25 to 35 in the minute. He observed more or less vertigo and stupor in nearly all the cases he saw; delirium occurred in a few of them, but headache was rare. In almost all the cases, restlessness, præcordial pain, and thirst, were present. In general, urine was made for the last time immediately before or immediately after the seizure; and during cholera, as is known, the tears refuse to flow, and the salivary secretion is diminished.

Dr Buhl paid special attention to the very curious phenomenon, observed by Doyère, Heinrich, Reinhardt, and Leubuscher, of the temperature in the axilla becoming raised (from 35° to 37° C.), immediately before death, and found that it occurred in the worst of his cases. He also observed, just before the fatal termination of the disease, violent contractions of the extremities, of the abdominal muscles, and even of the gluteal and masticatory muscles; and he also frequently saw emissions of semen, which were doubtless occasioned by a spasmodic condition of the perinæal muscles.

He devotes considerable space to the very important subject of the condition of the urine in cholera, to which so much attention has been paid by observers in this and other countries. He found that the first secretion of urine after the attack, took place in 18 to 24 hours thereafter, in 9 per cent. of the cases; on the second day in 41 per cent.; on the third day in 47 per cent. (the largest proportion); on the fourth day in 19 per cent.; on the fifth day in 11 per cent.; and on the sixth day after the seizure, in only 3 per cent. Where no urine was passed on or before the sixth day, death inevitably took place. The quantity of urine first voided varied from 135 to 530 cubic centimetres; in appearance it was generally turbid and of a dark brown colour, and when microscopically examined, it was found to contain fat, epithelial cells from the bladder (between which cells there were visible long byaline or molecular cylinders of fibrine), pus and mucus globules, blood corpuscles, urate of ammonia, and octahedral crystals of oxalate of lime. The presence of so much of the large epithelial scales from the bladder, distinguishes the albuminous urine first voided in cholera from the urine of Bright's disease. The specific gravity of this first urine, ranged from 1·012 to 1·016; in reaction, it was neutral or feebly acid. As was first shown by Simon in 1832, Buhl found that it invariably contained a considerable amount of albumen; and in two cases he detected in it the presence of sugar, as had been demonstrated previously by Heintz and Samoje. The quantity of phosphoric acid found in it was small (from 0·189 to 2·208 grammes). The quantity of urea was small, but the amount of it which was present did not seem to exercise any specific influence on the prognosis. One case, in which there was very little urea (4·482 gr.), recovered, while another, where there was three times as much present (11·636 grs.), proved rapidly fatal.

The urine which was afterwards passed gradually resumed its natural condition. It became more decidedly acid in reaction, the albumen entirely disappeared from it, and the excretion of urea was increased. As a general rule, he observed that the later the urine was in appearing in the disease, the longer time did it take to re-attain its normal condition. As the albumen diminished, so also the microscopical substances from the kidney and bladder, and the cylinders of fibrin, gradually disappeared. In one case he found the third urine which was passed, exhibit all the characteristics of the urine in catarrhus vesicae,—being alkaline, ammoniacal, full of triple phosphates, and with a thick sediment of pus and mucus globules. In a few days these characters were lost.

He next proceeds to chronicle his observations on the cholera-exanthema. "In cholera-typhoid," says he, "the exanthema may occur in circumscribed spots, or it may appear diffused over the whole body. In the first case, it appears in the form of erythema and furunculi. Certain parts of the face, especially the nose and the region of the zygoma (*jochbogen*) sometimes exhibited an erythematous blush, which became developed into erysipelas; and, in other cases, furunculi appeared on the back and the extremities. The general eruption, however, is more important. It occurred in eight cases which recovered (two males and six females), and in them it appeared either as a diffused red blush, in which there became developed more or less intensely red elevations (erythema papulatum), or in the form of red spots, the size of a barley-corn or millet seed (resembling Roseola) which assumed the appearance of measles or urticaria. All these erythematous spots disappeared on pressure, but in their papulous and urticarial conditions, they assumed a yellowish colour which did not act thus. The cholera-urticaria was attended by heat and itching. The exanthemata usually appeared before the ninth or tenth day after the seizure, and lasted two or three days. The hands, feet, and extremities generally, were the principal seats of the eruption.

Professor Buhl then proceeds to detail, with equal minuteness and care, the morbid appearances of cholera, and this portion of his monograph, is, in our opinion, a most valuable contribution to modern pathology. Our space does not permit us to enter upon an analysis of this portion of his work at present, but we propose, on some future occasion, to lay the results of his pathological investigations before our readers, comparing them with those of Gairdner, and other British observers. A. M. A.

On the Disorders of Infantile Development and Rickets; preceded by Observations on the Nature, etc., of Temperaments. By A. Schoepf Merei, M.D., Lecturer on the Diseases of Children at the Chatham Street School of Medicine, Manchester, etc. London. Pp. 218.

The volume of Dr Merei is one which will well repay perusal. If, with even less abundance of fact and illustration, he had allowed himself somewhat greater leisure for methodized arrangement, he would have avoided, however, a fault of occasional diffusion and discursiveness, which prevents him sometimes from doing adequate justice to the excellence of his materials, and to the acuteness and ingenuity of his observations. Dr M. is evidently a thinking and an experienced physician; and there are no parts of his treatise more instructive than those in which he brings into interesting contrast the diversities of result, under diversities of habits and condition, which he has been enabled to remark in the different countries in which it has been his fortune to be cast. From the manifest copiousness of his resources, springs a suggestiveness, which, if it frequently render him prone to introduce a fact or a comment that a stricter sequence would have transferred elsewhere, still awakens a similar suggestiveness in the mind of the reflecting reader, so as continually to keep alive and to repay the attention, and sometimes to introduce a train of remunerative thought, in so easy a way that we are scarcely aware of the effort of thinking. We willingly accept Dr M.'s apology for the inaccuracies of his foreign idiom; for there is really nothing more than adds a kind of piquancy to his naturally lively style, and we have nowhere to complain of misconception or obscurity.

Upon the whole, we are convinced that few of our readers will form an acquaintance with the contents of the volume, without associating with it a highly favourable opinion of the skill and capacity of the writer. We might have suggested, however, the propriety of a few alterations; and, among the rest, could have wished that he had stated his experience and his opinions as to the tolerance of high doses of opiates, in this country, with some more marked qualification.

Narrative of a Residence in Morningside Asylum. 1855.

Any narrative connected with Morningside that issues from the Asylum press may justly be regarded as beyond the pale of ordinary criticism; but the above tract has several mitigating features which entitle it to be received as a normal production. The author, independently of literary ability, has evidently recovered from his malady—he writes with a manifest air of impartiality, as may be gathered from certain defects which he points out as existing in the institution; and lastly, his lucubration is not an asylum publication, strictly so called, but is an extract from a series of autobiographic sketches which originally appeared in "Hogg's Instructor," and which has no other immediate connection with Morningside, except in so far as its private press has been the means of reprinting the portion that relates to its own walls, and which reprint, from its having faithfully retained what is unfavourable as well as what is flattering, may in this respect hold out a good example to those who indulge in the sin of cooking and suppressing whatever may seem to tell against a given object.

The world has ever had an itching ear for revelations from the prison-houses of disease and death—and notwithstanding that we have, from first to last, had many such, still few of them are of much interest to the general reader, or of practical value to the physician. The drunkard, the opium-eater, the semi-drowned, the half-executed, the murderer, the maniac, have in turn rushed to the press and favoured mankind with their "revelations," but all are more or less tinctured with the hues of after-colouring—we lack the literal life-like Daguerreotyping of the actual contact of the cloud. The truth is, that we are all so much engrossed with what Carlyle calls the "present now," that the picturing of the past, even when to do so requires only the exercise of the simple function of memory, is a matter of more difficulty than most persons are aware of, and when the period to be illustrated or described is one when the "mind is diseased," and when the observing faculties are unstrung, the obstacles that stand in the way of correct portraiture are all but insurmountable.

Blackwood, of magazine celebrity, once met with Coleridge, and with the hardihood of a bookseller, Ebony is said to have asked the poet "what he intended to make of the 'Ancient Mariner' when he began it?" The old man eloquent, replied, "I cannot tell you now, but if you had asked me at the time perhaps I could have told you." Now, with all reverence, what Coleridge said of his marvellous legend, all of us may say of the thoughts and feelings of our own infancy, childhood, and youth. Charles Lamb tells us about his first visit to the opera, Campbell about his first glimpse of the rainbow, Byron about the early flutterings of "love's young dream," and some other body about the virgin joy of the primal soap bubble, but we have no confidence in adult descriptions of infant impressions, we agree with the humble bard Gilfillan, that

"The first joys of our life
They ne'er come back again."

They may be gathered, but it is like the chemist collecting the morning dew from the shining grass, the essence is all there, but the glitter and sparkle are gone for ever. Why does a man go mad? Granted that there are impaired physical organs, but what were the psychological phenomena that induced or aggrieved their diseased action? Was it alcoholic drink, jealousy, ambition, disappointment, or what? Was it his own morbid pride, or had his friend, his lover, or his wife, forsaken him, or who? Till the anatomy of lunacy is laid bare to the bone we cannot see its inner life, and the mere external revelations will not content us. And this inner dissection we cannot, from obvious causes, easily get at.

With these preliminary observations we shall now let our author speak for himself, premising that, of its kind, his narrative possesses many points of deep interest. The writer is by profession a journeyman printer, and by taste a "*litterateur*." After a season of bad health, marked by great depression of spirits, he states that he obtained no relief from the ordinary appliances of physic, and hence he somewhat rashly concluded that the whole materia medica should be flung to the dogs. This point settled, he next, as is generally the case with this class of invalids,

ATTEMPTS SUICIDE.

I recollected, in my despair, that an eminent physiologist in Edinburgh, who took a kind interest in me during the first period of my illness, while advising me to relinquish the snuff-box, as hurtful to the stomach, had assured me that a small quantity of the pungent snuff I used, called "Taddy," if put among boiling water and swallowed, would occasion death. This I now resolved to put to the test, and taking the first opportunity of being alone, I saturated a pretty large quantity of the snuff with boiling water, and instantly swallowed it. Expecting when I should become torpid from the narcotic poison, or fall down dead, I was surprised and disappointed to find no other effects than a violent and long-continued hiccup, and, of course, I lost all faith in snuff as a deadly agent. It is—fortunately for persons in my unhappy situation—difficult to procure the more deadly mineral or acid poisons, but my diseased thoughts now fixed upon laudanum as a last resource. I had read the affecting account of poor Cowper, in his efforts at self-destruction, having procured a half-ounce phial of laudanum as a deadly dose, and I procured, by pennyworths at a time, in different shops, about three-quarters of an ounce, that the quantity, as I thought, might be effective. But, as night approached, and the terrors of death and the judgment stood in array before me, along with the cruel injury I was about to inflict on my poor family, better thoughts got the ascendancy, and the deadly draught was thrown over the window, with a resolution to banish such a [fearful purpose for ever from my mind. But the demon of self-destruction was not to be exorcised so easily, and it haunted me with the morbid and fixed purpose of moral insanity. I had been so distracted that for some days I had been unfit to attend to my duties at the chamberlain's office, [he had obtained temporary employment as a collector of taxes in Edinburgh], and I felt as if hurried by an irresistible impulse and inevitable necessity to consummate my terrible purpose. Accordingly, with thief-like caution, and "method in my madness," I procured the like quantity of laudanum by the same means as before, and concealed it, till I should go to bed with my sleeping draught, and "sleep the sleep that knows no waking."

This was on Friday the 2d of July, 1852. When I think on it, I cannot account for the moral torpor of my mind, but by the conviction that my brain was overwhelmed with insanity. Pity for my poor wife and children I seemed to have none; and a sense of my moral responsibility to God, as a free agent, must have been greatly obscured or lost. Greedily I swallowed the deadly draught, and lay down in a stupor of misery, never, as I believed, to open my eyes again on this, to me, world of wo. I think it might be about four o'clock on the following morning that I wakened to a dim consciousness of existence, and of what I had done. The walls of my bedroom, as I sat up, seemed to be revolving with a vertical motion, and the furniture and pictures on the wall continued spinning round, till my eyes grew sore and my brain giddy with watching their rotatory evolutions. With the exception of a feeling of stupor and giddiness, I felt well and happy; and I lay the whole of that day and next night in a soporific and delicious dream, between sleeping and waking. On the Sunday I walked with my brother in the fields, was very talkative and merry, and went to the church in the afternoon. I kept my own council, however, regarding the laudanum, and in the evening I drank tea with my sister in London Street, without exciting any feeling but surprise and apprehension at my apparent rapid recovery and high spirits. I left London Street alone in the evening, intending to visit the grave of a dear friend in the beautiful Cemetery of the Dean; but fortunately I had changed my mind, or had felt unable for the journey, as I found myself in the Meadows, when the sun was going down, and bathing meadow, tower, and tree with a flood of golden light. While enjoying the soft effulgence, I was suddenly struck with a faintness at the heart, and a violent palpitation commenced, as if the wheel at the cistern was hurrying on to a sudden crash. Believing I was instantly dying, from the violent throbbing of my heart and brain, it was with difficulty that I reached a seat, and entreated some persons who observed my distress to let my friends know that I was dying. Here, with a crowd gathering round me, I watched, as if for the last time, the sun descending behind some trees on the horizon, and, convinced I had but a few moments to live, the thought of what I had done overwhelmed me with terror and the certainty of eternal perdition. Recollecting that I had observed some discoloured spots on some parts of my body in the morning—no doubt a healthy effort of nature to throw off from the citadel of life the deleterious drug I had swallowed—the thought rushed on me that mortification had commenced, and further confirmed my dread of speedy dissolution. My friends at length came, and took me home, the palpitation having somewhat abated; but my dream-like recollection of the subsequent events of that night and the following day are but the reminiscences of insanity. Still, as in my former delirium, I was obscurely conscious of a double mental agency, knew every object and person around me; and, as there appeared to be a good deal of whispering and watching going on, I thought I was the victim of a conspiracy to deliver me up to the hands of justice as a flagrant criminal. How I passed the night I cannot tell, for I was unconscious of the sorrow and distraction of my wife; but all next day I talked and sung incessantly; and though I am no singer, and not remarkably gifted with the powers of elocution, my recitations and songs, from the ample stores of my memory, seemed so touching and effective, that I shed tears of emotion and joy at my own exquisite utterances. The exalted egotism of the maniac was fairly in the ascendant; but though elevated in my spirits, I was somewhat conscious, from sad experience of the former fiery ordeal I had gone through, that this bewildering excitement was a premonitory symptom of approaching brain fever and entire mental alienation. I believed I had ruined my character for ever with my employer; but I was to put a bold face on my infamy, I had determined to resume my avocations next day, and laugh at the simplicity of the chamberlain who kept such a rascal in his employment.

IS CONDUCTED TO THE ASYLUM.

Meantime the whispering and plotting seemed to be still going on, and I had resolved to stand on the defensive, and keep a sharp look-out, when in the evening I was solicited by my brother and other two relatives to accompany them in a short excursion to the country, in a cab. To this I cheerfully acceded, marvelling much where we were going, or what friend we were to visit. I had scarcely taken my seat, however, when I suspected, from their manner, the covert purpose of the drive, and the truth dawned upon me that they were conveying me to a madhouse. But I felt passive and resigned to my fate, thinking I would find a refuge from disgrace, where the finger of scorn, or the reproaches of cruelty or malice would not disturb my solitude and repose; and I voluntarily gave up to my friends my penknife, believing, in my partial gleam of sanity, that I could not safely be entrusted with edge instruments. In a few minutes, accordingly, I found myself an inmate of Morningside Asylum.

I stepped out of the cab with alacrity, and with a dreamy perception that I was entering a madhouse, having recognised the benevolent features of Dr Skae, the resident physician, on my entrance; and after the preliminary examination of papers, I was consigned to the care of an attendant. It was now about nine o'clock in the evening, and, having parted from my friends, I was conducted up some stairs to a long airy dormitory, containing about 24 beds, arranged transversely along the walls, every bed but one being occupied. These "strange bedfellows," with whom misery had brought me into contact, seeing I was rather merry and loquacious, welcomed me into their community with congratulations and laughter. Some eyed me with curious and critical inquisitiveness, and, like all other isolated communities, were impatient to to know who I was, where I came from, and what had brought me there. I told them I was Peter M'Craw, the tax-gatherer from Leith, so graphically described in poor Robert Gilfillan's song, and that I had been driven demented by ill-usage. But I was assured they were all happy there, there were no taxes to pay, and everybody laughed at the folly of the world without; an assurance which was corroborated by a hearty peal of laughter. After stripping and getting into bed, I continued, notwithstanding the remonstrances of the attendants, to be very noisy; I could not sleep, nor allow others to sleep, and I could not lie still, from nervous excitement; when suddenly I was stunned and confounded by a violent blow, inflicted no doubt through a rash and impatient impulse. This rather rough salutation proved a quietus; and I was forthwith hurried away to another part of the house, through a long line of corridors and echoing galleries, where I was put into a separate apartment, and locked up, with night, and solitude, and a distempered brain, in a madhouse. I was not yet, however, under the influence of terror, though somewhat confounded by my unceremonious reception; and having some exaggerated notion of my own importance, I believed I was confined through some political manœuvre connected with the pending election of Mr Macaulay, who had some time before sent me a copy of his "Lays of Ancient Rome," with a complimentary letter on my poetical efforts. Thus the spirit of a martyr for a little sustained me. I thought an acquaintance who had died in the Asylum ten years before was still living, immured in one of its cells, and a bonnet which was lying beside me seemed the identical bonnet that he wore; and I somehow comforted myself with the assurance that my friend, Mr Combe, would visit me next day, and, penetrating the secrets of my prison-house, would not suffer a person of my importance to be robbed of his liberty. I tried in vain to sleep, but the hardness of my bed, suiting ill with the extreme attenuation of my body, would not suffer me to rest, while the nervous state I was in, and the dreadful noises that now assailed my ears, entirely put to flight nature's soft nurse, and threw me into a horror of great darkness and misery. Being rather sensitive in regard to personal cleanliness, before the daylight had faded, I was shocked to observe stains on the bed, a thing purely accidental and exceptional; while a utensil of gutta percha—(earthenware being obviously inadmissible in such a place)—distressed me with its strong ammoniac odour. In the apartment on my right, a poor maniac raved through a blasphemous form of prayer the whole night, cursing God, as he called it, with all the bitterness of his heart and tongue; while in that on my left another old madman reasoned high on the perplexities of fate and free-will, faith and works, with all the energy of a Calvinistic divine, and never seemed to sleep a wink. Another shouted and sung through the watches of that dreadful night, "Cain was a murderer! Cain was a murderer!" which ran through my very soul with terror, as a denouncement and reproach levelled at myself; while the swearing and blasphemies which ever and anon startled the dull ear of night, blending with my distempered fancy, threw me into a delirium of insanity, and were enough to whirl the soundest brain. I now thought I was cast into hell, and herding with the damned, beyond all reach of hope or mercy, and my sensations under this delusion were indescribable. Anon "a change came o'er the spirit of my dream," and I thought I was in my grave, buried alive, deep, deep in the bowels of the earth. I gasped for breath, and marvelled that there should be life in the tomb, or any sense of its horrors. I pinched my body, and groped about the walls to be assured that I was a living man, and to get out of my perplexity. But these wild hallucinations overwhelmed my tottering reason; yet I never entirely lost consciousness and memory, and can look back on the whole drama like the phantasmagoria of a troubled dream.

FIRST DAY'S EXPERIENCE.

The cold grey dawn of the summer morning at last broke in upon my delirium, but its uncertain light at first gave greater scope to my disordered imagination, which converted the folds of the bedclothes into serpents and reptiles, and all sorts of loathsome creeping things, "hydras, gorgons, and chimeras dire." With this impression stamped on my brain, I started to my feet in horror, with my eyes rivetted on the hideous sight; and there I stood transfixed, and unable to move for many minutes, in unutterable terror. At length, slowly reaching down my hand, as daylight increased, to touch one of the immoveable monsters, I was mightily relieved to find nothing but the folds of the bedclothes, and that I myself was the only living thing in the room. My two next-door neighbours still, at intervals, continued their exercises; and an occasional howl and rhapsody of oaths fell on my ear, and testified that I was still somewhere in the land of the living. But I had now lost all consciousness of where I was. I felt exceedingly unwell and feverish after so much agitation, and would fain have slept, but no slumber would visit my eyelids, and from the increasing commotion I heard, the business of the day seemed to be commencing. By and by my door was opened, and my clothes flung down upon the floor, but no one spoke to me, till a stout, good-natured looking man came in with some coffee and bread, and spoke kindly to me while I took breakfast. I then managed to dress, and walked out into a court, where I felt delighted with the freshness of the morning after the horrors of such a night. Here I saw a most *outre* group of human beings moving about—epileptic, idiotic, and fatuous persons, with all the miscellaneous oddities, and eccentricities of a madhouse. I did not suspect I was in Bedlam, but imagined I was in some hydropathic establishment in the neighbourhood of Glasgow. I began to feel my brain getting clearer, and reason partially resuming her seat, though I was perplexed to recognise in the persons about me friends and relatives, no doubt arising from some obscure association or resemblance, one of whom was a son of my own, who, poor fellow, was then far away on the deep, deep sea, but none of them could I get to understand or communicate with me, which distressed and puzzled me very much. I was now cheered by a visit from the medical gentlemen, who inquired kindly into my condition, and gave some orders regarding regimen and the bath. I kept in the airing-ground the greater part of the day, but towards evening my hallucinations returned, and, though I was conscious of sitting on a bank opposite a wall of the court, I could not shake off the impression that I was in my own bedroom, and that some one was listening at the keyhole; thus confirming the theory of the dual organization of the brain, which had lost its balance, one section being partially sane, while the other was utterly crazed. To my solitary apartment, and to bed, again I went, but not to sleep. The poor maniac on my right again commenced his revolting blasphemies, and he on my left his controversial monologue, while the same stunning noises and howlings, with "Cain was a murderer!" again assailed my ears. I got through the night, however, without the aid of "tired nature's sweet restorer," with less misery than the preceding, and was well when I was called in the morning to enjoy the refreshment of the tepid bath. Then the sweet breath of the morning, while "the opening gowan wet wi' dew" spangled the fragrant grass in the courtyard, went to my heart with a freshness, cooling my fevered brain, and bringing tears of grateful joy to my eyes. But the thought that I was deserted by "all the world and my wife," and an object of scorn and abhorrence to my friends, was ever uppermost. One of my greatest privations was the want of snuff, and in the course of the day was much gratified by the receipt of a parcel containing a supply of that necessary article, with other memorials of kindness, which I knew could only come from the true friend of my home and heart. This was the best medicine to my bruised spirit, and helped to remove my suspicious dread of desertion and contempt. The mental fog was clearing away, and I entered into communication with some of my companions, who seemed very willing to take me under their protection. An arithmetician instructed me in figures, a "stickit minister" in divinity, and a crazed flunkey, who assured me they were all mad but himself, maintained that Dr Chalmers was the editor of a certain journal, and that he himself knew Robert Burns (who died long before he was born), and assisted him in the composition of some of his best poems. So "time and the hour" moved through the day, and another almost sleepless night, disturbed by the same demoniac noises as before.

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DEMEANOUR OF ATTENDANTS.

I soon found that the quarter of the Asylum I was in was that appropriated to noisy, excited, and furious patients, one ward being occupied by males, and another by females, but, with their respective airing-grounds, perfectly isolated from each other. This satisfactorily accounted for the appalling Babel of sounds I had heard.

As I mean to comment with freedom on all that passed under my observation, for a strictly moral purpose, I may here venture to remark, that, from the superfluity of swearing that goes on among the unfortunate patients, there is little need for the attendants garnishing their vocabulary so liberally as some of them do with such senseless, disgusting, and profane figures of speech. They have, no doubt, rough work in that department, frequently requiring the exercise of physical coercion; but moral restraint is of more essential efficacy; and a man may be firm and yet gentle, and, above all, may enforce his will more inflexibly and beneficially, by rational and decent language, than by all the foul idiom of Billingsgate.

REMOVAL TO ANOTHER WARD, AND VISIT TO CHAPEL.

The first week of my seclusion was passed in the separate building; and I was removed to the third gallery of the Western Asylum, which is appropriated to the convalescent class of patients, on Sunday morning, "clothed, and in my right mind," and transferred to the medical superintendence of my excellent friend Dr Rowe. Here I found myself in a comfortable parlour, among about a score of quiet, rational-looking men, some of whom appeared attentive and polite, and welcomed me into their society with a frank, homely courtesy. After breakfast, and looking over some periodicals and newspapers, with which the patients are here supplied every Sunday morning, I attended for the first time the forenoon service in the chapel, under the pastoral ministration of Mr Lorimer, the chaplain. Here I found about 300 patients, with their respective attendants, assembled from all departments of the Asylum, and was very much struck with the stillness and propriety of their demeanour, contrasting favourably with the levity and ostentatious parade often exhibited in some more fashionable places of worship. Here were the imbecile and fatuous by nature, with the hopeful convalescent; the confirmed maniac, with the peculiar grey light of insanity glittering in his troubled eye, and the inexplicable monomaniac, with his fixed delusion—rational and intelligent on every point but one; the moping idiot, the brain-struck epileptic and paralytic, the demented victim whose mental life and light had been obscured or extinguished by misfortune, and whom the world had cast forth as lumber; the unhappy victim of nervous hypochondria, with unhinged brain, who meets from the healthy and inconsiderate with more reproaches than pity: here were they all assembled, men and women, young and old, with all their delusions and woes, reverently inclined to join in the worship of Him who had seen meet to afflict them with the heaviest of human calamities, and lifting up their voices in cheerful praise to the common Father and Everlasting One, whose mercy endureth for ever. The service was judiciously short and varied, and seemed to have a soothing and beneficial influence, for, amidst all the moral perversion and obscurity of thought among the insane, the one grand idea of God above and the better land seems never to be extinguished. Here I got out to a new airing-ground, and a new society, and a new sphere of observation.

PREMATURE DISCHARGE AND RELAPSE.

After some time my parole was extended beyond the walls of the Asylum, and once a week I had the unspeakable gratification of tasting the fireside enjoyments of my own home, and to feel that, "be it ever so humble, there's no place like home," especially after misfortune had broken up the family circle, and a merciful deliverance had given us reason to hope for better days. I now felt my health so much improved, that, urged by strong necessity and every motive of duty and affection, I began to look about for some employment; and through the influence of my friend Mr Ballantyne, and with the sanction and recommendation of Dr Skae, I got an appointment as a collector for the Edinburgh Water Company. This, however, after a week's trial, I found so much beyond the compass of my strength and faculties, that, with feelings of deep mortification and disappointment, I was forced to relinquish it. I became perplexed with the simplest calculations. I lost money, and I literally lost myself, having, on the last day of my collecting, become so bewildered in streets long familiar, that I could not discriminate north from south, or east from west, as if my brain were completely turned. I became very much alarmed, and went next day to the Asylum, to consult Dr Skae, who immediately made arrangements for my return; and accordingly, on the evening of the day following, I was replaced in my old quarters, and, fortunately, just in time to avert the dreaded relapse of a diseased brain. The cloud of hypochondria was hovering over me, and threatening to wrap my spirit again in its dusky folds; but, as it is only those who have felt the iron of such a malady enter their souls that can sympathise with or understand me, I will not inflict on the reader any further allusion to a nameless misery, that can only find adequate expression in the pathetic and terrible eloquence of the Book of Job.

The author describes the weekly ball, the Hallowe'en and Hogmanay festivities, curling pond, etc., at the Asylum, but we have only space for his reference to the

"VISIT OF TEMPLETON, THE SINGER."

On one occasion during my residence, an interesting and novel treat was furnished, by my friend Mr Templeton, the celebrated vocalist, kindly volunteering one of his popular entertainments, *con amore*, for the gratification of the patients. Never before had the audience such a singer, or the singer such an audience; and I was curious to observe the effect of such an unwonted entertainment on the insane. Strangers to mental disease may not be aware how susceptible of tender emotions many of their unfortunate fellow-creatures are, who, like stricken deer, find a refuge and a home from the storms of life in this humane retreat. To them the charms of music jar upon no morbid chord in the diseased idiosyncracy, but are altogether healthful and beneficent, and tears may be seen, like rain-drops, running down cheeks of apparent stolidity, stirred from their depths by the pathos of song. The evil spirit that afflicted Saul was charmed by the harp of David; and when he played, we are told, "Saul was refreshed, and was well, and the evil spirit departed from him." On this remarkable occasion the audience were at one time spell-bound in eloquent silence by the voice of the charmer, and anon, in the humorous ballads and illustrative anecdotes, which were given with inimitable effect, every point of which seemed to tell, the soul of hilarity burst forth in a roar of laughter, as by a touch of the enchanter's wand. Not even "Macedonia's Madman," sung by Dryden in his immortal ode, was more thrilled and subdued by the wizard spell of music, than were my poor friends on this memorable occasion.

FINAL DISMISSAL.

I had now been about nine months in the Asylum, and felt so stout and well, that I began to encourage myself with hopes of being able to resume my occupation at the press; as I was convinced, if I had bodily strength adequate to the labour, it would both prove more congenial, more healthful, and more remunerative than any of the perplexing shifts I had attempted to so little purpose. I had continued to job frequently in the printing-office of the Asylum, and felt quite proud of my ability, and forthwith set about making arrangements for employment out-of-doors, which I had no difficulty in procuring. I had continued to pay a weekly visit to my family, and neglected no opportunity of sanitary exercise in the open air, having frequently enjoyed the exhilarating sport of skating during the winter, which renewed the pleasures of my early youth, and made me happy with a sense of physical vigour, which I trusted soon to apply to a more important and necessary purpose. Accordingly, with the full concurrence of my medical friends, I finally returned to my home, in the tranquil possession of all my faculties; a living evidence of the infinite goodness of the Almighty, who sees meet to afflict the children of men, "to prove them and try them, that he may do them good in their latter end." Though my family had patiently submitted to many privations, yet, by unremitting industry, and the kindness of our friends, eked out by some literary work on my part, my wife had managed so admirably, that, with the exception of a large debt of gratitude, I returned home unencumbered with a farthing of debt. My books, and every old familiar object remained as I left them; my household gods were undisturbed; and I sat down a healthy and vigorous man, in the old corner at my own fireside, with a delighful sense of comfort and gratitude which language can but poorly express. When the hand that provides for the daily wants of a family is paralysed by such a calamity as mine, their little all is soon eaten up, or scattered to the winds, and nothing in general but destitution, and the last sad refuge of the pauper is their inevitable doom. But a more merciful fate was appointed for me and mine; which, after all that I have suffered and survived, the reader will excuse me for recording with reiterated sentiments of thankfulness, and above all, for the possession of the inestimable blessing of a sound mind in a healthful body, which is all my wealth and all my desire.

I forthwith commenced work at the press in right good earnest, but cautiously and by degrees at first, that I might gradually inure the muscles to the unwonted exertion, and I was soon so successful in my efforts, as to be able to prolong my labours to eleven hours daily, that being the usual period of work among printers. I am now, after nine months' probation in one of the largest establishments in Edinburgh, able to take my share of the work with the youngest and stoutest men in the office, though now in my fifty-sixth year. The occupation of a pressman, I may be allowed to remark, though requiring a sound muscular frame, is neither so incessantly laborious nor so monotonous as the unprofessional reader may think. A large portion of his time is occupied in preparing or "making-up" the impression; an operation requiring considerable taste and skill, especially in illustrated works; the effect of which is shown in that beautiful typography which so much delights the parental eye of an author, and pleases that of his reader, but which cannot be produced without a degree of labour and patience which the reading public do not often appreciate. Forty years ago, the only "palladium of British liberty" was the old wooden press, the same on which Benjamin Franklin worked in London, and which had continued unimproved since the days of Caxton. These presses were generally placed in the darkest part of the office, and worked by strong, unskilled labourers, denominated *pigs*, in the technical phraseology of the business, from the then very dirty nature of their occupation; a large supply of bone and muscle being thought the only requisites for such a humble office. Since the invention of Lord Stanhope, which was the precursor of the unrivalled Columbian press, and the introduction of rollers, used long before in cotton printing, which led to the application of steam power, the "black art" of the pressman has undergone a remarkable revolution, and may now be allowed to have some claim to rank among the fine arts. To an industrious and efficient workman the remuneration is good, and above that of many mechanics; and in my own case, adequate to all my wants, which, fortunately, are so few and simple, that with the possession of health, I am in fact independent, and have immensely the advantage of much richer men, whose artificial wants, and the conventional status of their social position, keep them embarrassed and poor in the midst of plenty. In the words of the old song, "My mind to me a kingdom is;" and, taking an occasional canter on my favourite hobby of rhyme and song, I go on my way rejoicing, thankful for the past, chastened, I trust, by its sorrows, and hopeful for the future.

It only remains for us to thank the author for his very interesting *brochure*, and to express our earnest hope that his health is now thoroughly re-established, and that we may long have the opportunity of recognising his pen in those walks of literature which he is so well qualified to cultivate.

Part Third.

PERISCOPE.

MEDICINE.

GUMPRECHT ON THE NOURISHMENT OF WEANED CHILDREN.

Our readers may remember that, sometime ago, Dr Gumprecht of Hamburg proposed the expressed juice of carrots, combined with other farinaceous substances, as an appropriate diet for children newly weaned, or about to be weaned. Subsequent experience has amply confirmed the value of this aliment; but, unfortunately, there are certain cases in which it is unsuitable, viz., in those children who, from natural weakness of digestion, unsuitable diet, or the neglected diarrhœa which often attends dentition, are very subject to severe attacks of diarrhœa. In these cases, the digestive functions being impaired,—a purely vegetable diet is inadmissible; and food is required, the constituents of which, being analogous to the formative elements of the infantile organism, may be at once assimilated, without undergoing any intermediate change or metamorphosis. It has been attempted to feed such children upon diluted milk, arrowroot, and similar farinaceæ—the fact being forgotten that these farinaceous meals are not suited to weak digestions; and that (as has been shown by Knaff), the thick covering of the starch granules is insoluble even in large quantities of boiling water. Hence, it can easily be understood, that these granules will, in dyspeptic children, provoke indigestion, and leave the bowel unchanged. Our author, therefore, considers that the farinaceous foods, before being given to delicate weaned children, should be *roasted,* in order that thereby the indigestible covering of the granules may be destroyed.

But such children, according to Gumprecht, in addition to such foods, should invariably be supplied with albumen, and with a proper proportion of organic salts and fat; because (as Moleschott has shown), albumen, organic salts, and either fats or sugar, are indispensably necessary for the nutrition of the body. We should, therefore, give these children animal food; and this is most easily assimilated, in the form of the best raw beef-steak, devoid of fat, pounded into a very fine paste. Of this paste, two tablespoonfuls—divided into four doses, and administered at intervals—may be given daily to the child. He also recommends the use of Liebig's beef-tea, which is prepared by putting a pound of the best lean beef, divided into small pieces, into an equal quantity of water, adding thereto a little salt, and letting the whole simmer for half an hour by the fire. The beef-tea is then passed through a sieve, and is ready for use. (Liebig's albuminous soup would answer the purpose equally well. For its preparation, see *Monthly Journal,* April 1855, p. 345. (*Trans.*) Dr Gumprecht recommends the use of horse-flesh for the preparation of beef-tea as suitable for the children of the poorer classes.—*Journal für Kinderkrankheitan.* May and June 1855, p. 321.

DR PETTERS ON DIABETES MELLITUS.

The above named author has recently published a most elaborate paper, containing most careful observations of five cases of diabetes mellitus. These investigations, which are exceedingly minute and exact, form a worthy sequel to the observations of Dr Von Dusch of Mannheim; an abstract of which the reader will find in the *Monthly Journal,* July 1854 (vol. xix., p. 68).

Dr Petters considers that, in Germany, the disease is more common among men than among women. Out of twenty-one cases, Professor Jaksch found only seven women; and among twenty-one cases treated by Professor Oppolzer, there were seventeen male and only four female patients.—(*Hellier's Archives*, Nov. 1852). Dr Prout, however, found that, in this country, the disease occurred most frequently among women.

The disease appears to be common to no particular time of life. Oppolzer has seen it occurring at as early an age as 14, and in patients as old as 70.

Dr Petters observes, that in all his cases, the patients had blue eyes, fair hair —and a general want of deposition of pigment cells;—a condition which he thinks is common alike to tuberculosis and to diabetes.

He remarks that the disease seems capable of being produced by various causes; as mental distress, rheumatism, sudden chills, gout, etc.; and he mentions a curious case given by Jaksch, in which a merchant, while on a journey, ate a large quantity of badly baked white bread, and thereafter sat down at a spring and took a copious draught of cold water. Immediately after this he experienced a chilly sensation, and next day sugar was found in his urine.

In all his cases there was great thirst present; and he relates the following curious anomaly which occurred in relation to this symptom. One of his patients, a girl, was attacked by variola while in hospital, and he found that alike during the fever which ushered in the exanthema, and during that which attended the crustation of the pustules, she drank *actually less* than she did previous to her being seized by this malady, she drank fourteen pounds of fluid daily, a fortnight before the smallpox occurred, and during the premonitory and secondary fevers attending it, she only drank ten pounds; while during the interval between the initiatory fever and crustation of the pustules, she required seventeen pounds of fluid daily.

Our space does not permit us to detail all the interesting observations which this author chronicles: we refer such of our readers as are interested on this point, to the original paper. The following, however, are the general results which Dr Petters considers warranted by his observations:—

1st. The more fluid was taken by the patient, the greater was the quantity of urine passed, and of the sugar which it contained.

2d. The per centage of sugar in the urine was found to increase in a corresponding ratio with the amount of food taken; but it was invariably increased by vegetable, and decreased by animal food.

3d. The thirst was greater when purely vegetable food was taken, than when a mixed diet was used; and it was lessened when a purely animal diet was taken.

4th. Intercurrent diseases, and the use of medicines, seemed to have little or no influence over the excretion of sugar.

5th. Once only he found sugar totally absent in diabetic urine.

6th. Invariably he found, that towards the fatal termination of the illness, the amount of the sugar became decreased, that the thirst gradually left the patient, but that the appetite remained unchanged.

7th. The specific gravity of the urine never seemed raised by an increased per centage of the contained sugar.

8th. There may be an increased excretion of sugar from the economy without any evidences of it being seen in the augmented quantity of the urine, as frequent stools may carry it off by the bowel.

9th. Most diabetic patients die of tuberculosis.

Dr Petters regards defective oxidation as the cause of mellituria, and he thinks that the correctness of this hypothesis is proved by the fact of sugar being so often found in the urine of patients labouring under pulmonic diseases, which would not be the case if it were burned off as carbonic acid and water in the normal process of respiration. But as to what is the fundamental cause of this impaired power of oxidation which exists in diabetes,—whether it depends on some change in the vagus nerve, or in the great nervous centre,—Dr Petters hazards no opinion, and considers that we have this still to learn.

The *medicines* with which he treated his patients were, Opium; Carbonate of Iron; Sulphate of Iron; Ext. Nucis Vomicæ; Cupri Ammonio-Sulphas, etc. Like other observers, he found, that when Opium was exhibited, the quantity of fluid drunk became diminished, and that less sugar was excreted. He found none of the other medicines of any service.—*Prag Vierteljahrschrift für die Prapktische Heilkunde. Band II. Jahrgang* 1855.

M. TROUSSEAU ON THE PURPURA OF WERLHOFF.

A very characteristic example of that species of purpura hæmorrhagica described by Werlhoff, under the name of morbus maculosus, lately appeared in the wards of M. Trousseau. The disease occurred in a young flower girl, seventeen years old, of regular habits, and brought up in the country, and who had suffered from no other malady, with the exception of some scrofulous swellings in the neck. For six months she had resided with her parents in Paris, occupying a healthy apartment, and, as the livelihood she gained was sufficient for her comfortable maintenance, her condition, so far as hygiene is concerned, was in every respect good enough, when, fifteen days before her admission to the Hotel Dieu, she had an attack of epistaxis. At this time the hæmorrhage was slight. Fifteen days later, however, she was again attacked in the same manner, but with so much increase of the bleeding as to induce serious apprehensions for her safety. The hæmorrhage, this time also, became arrested, and, after an interval of eight days, the skin was observed on the 4th May to be covered by a number of violet-coloured spots, resembling the berries of Privet (?). Similar spots, of an ecchymotic appearance, were also observed upon the gums and mucous membrane of the mouth. An oozing of blood from the nose was also present, and on the 7th clots of blood were found in the water closet.

Such, says M. Trousseau, is the ordinary course of the simplest forms of the morbus maculosus of Werlhoff. The absence of fever and paleness accompanying it, must also be remarked. From time to time there occurs adventitious headache and flashing in the eyes; hæmorrhage may take place in the choroid or the humours of the eye, and impaired vision exist for fifteen days or a month. At other times, hearing may become disturbed; a peculiar noise being heard in the ear, the result of slight extravasations of blood. In one case of a woman aged 54, M. Trousseau mentions having met with a similar noise accompanying deafness. In some instances, slight paralysis of one side of the body exists, arising from extravasation of blood within the cranium; hæmoptysis also occurs, the bronchial being, like the intestinal mucous membrane, subject to hæmorrhage. The skin not only exhibits the peculiar spots already noticed, but in some cases phlyctenæ exist on the inner surface of the lips, etc.; and on the arms, abdomen, etc., ecchymotic patches are to be found of the size of one or both hands together. The young woman referred to as the subject of these remarks, presented one of these patches of enormous extent, and situated upon the right iliac region. A singular circumstance connected with this affection is, that about the end of eight days all these spontaneously disappear; and then, subsequently to a certain degree of fever, with headache and general sense of uneasiness, there is a reproduction of spots in greater or less numbers. In some cases, the paroxysm of the disease is ushered in by hæmorrhage from the nose, the lungs, the intestines, or the uterus. In the present instance, epistaxis recurred at intervals of eight days, and the appearance of the eruption corresponded with the third of these attacks.

It will be perceived from what has been said, that this affection differs essentially from scorbutus. The latter disease is preceded by pains, weakness, loss of colour, fetor of the breath, and other symptoms indicating a liquifaction of the blood. In the malady described by Werlhoff, there is no softening of the gums; they retain a healthy appearance, except at certain points, where they are ecchymosed. And, moreover, the teeth are remarkably well embraced by the gums, as seen in the patient now under treatment. Besides, in scorbutus there are no paroxysmal phenomena. The purpura of Werlhoff has more resemblance to certain varioloid eruptions, which are accompanied with delirium and are less serious than they appear, as about the tenth day the postules harden, and the patients recover. Of course the eruptive markings here referred to are not those which supervene from the twelfth to the fourteenth day of small-pox, but those of the commencement, which are slight extravasations arising from the congested state of the cutaneous surface. During the second week of scarlatina, measles, and small-pox, spots also appear which are correctly regarded with apprehension, but these spots cannot be confounded with those of the malady of Werlhoff, as they are always complicated with an eruptive fever. The same remark applies to those appearing in connection with an altered state of the blood in children who have been reduced by vomiting and diarrhœa.

When the purpura of Werlhoff is unaccompanied by hæmorrhage, acid drinks, lotions, and injections of the same nature are sufficient; indeed, without any treatment, the disease disappears after a short duration. But if the affection be ushered in by abundant hæmorrhage, the blood rapidly becomes impoverished, and the prognosis assumes an unfavourable aspect; patients rapidly sinking in some cases, from circumscribed inflammations consequent upon cerebral hæmorrhage.

What treatment is to be pursued in combatting this affection? There is only one method, the efficacy of which seems incontestible, and that is the exhibition of powder of cinchona. Werlhoff was the first to try this remedy on a girl seventeen years old, and effected a cure in her case by giving half a drachm of powerdered cinchona every two hours, for seven days. This fact was lost sight of when M. Bretonneau, who had not read of Werlhoff's case, entertained the idea of treating the epistaxis in the same manner. M. Trousseau here gave the powder of cinchona (quinquina calissaya), in the dose of four grammes daily for three days. The treatment was then intermitted for one day, and again recommenced in the same manner, increasing the interval of intermission by one day each time, employing at the same time, as auxiliary remedies, acid drinks, the juice of fruits, etc.

Regarding the patient mentioned above, where epistaxis occurred every time the nose was blown, and where for some time a number of spots had existed upon the skin, the symptoms were not permanent; it was a case of the disease of Werlhoff. At first rhatany and some acids had been employed in the treatment, but without much success. M. Bretonneau, then in Paris, advised M. Trousseau to try the powdered cinchona; the patient was subjected to this remedy, and from that time the progress of the disease was checked, and the epistaxis, which previously had resisted even the injection of perchloride of iron, was arrested. Was this patient cured, however? Undoubtedly not, says M. Trousseau, as, on account of her advanced age, there was reason to fear an attack of cerebral hæmorrhage; she is, however, much better, and there would only appear an extra necessity in her case for a continuation of the treatment by cinchona.

As for the girl in the Hotel Dieu, severe intestinal hæmorrhage, followed by syncope, took place on the 12th and 13th of May. On the 17th, M. Trousseau remarked her paleness, and the presence of the feverish condition observed in anemia; a condition of importance to recognise in some states of convalescence, in order to its being combatted by invigorating diet and regimen. M. Trousseau here expressed his fears that in this case the hæmorrhage should continue, and, by the alteration in the blood, induce such changes in the gastric fluids as would lead to loss of appetite and the occurrence of indigestion; a condition of a most embarrassing nature, under the circumstances.

In order, if possible, to avert these consequences, he considered it proper to combine the cinchona with a small quantity of opium as an adjuvant to its effects. The patient was also ordered albumen in small quantities (l'eau albumineuse), and weak soups. Besides, the paroxysmal nature of the disease afforded some hopes by the intermissions which were occurring now and then; M. Trousseau placed his reliance upon these, upon the youth of the patient, and upon the vis medicatrix naturæ. In this hope he has not been disappointed; altogether, it has been necessary merely to attend to the intestinal hæmorrhage, which was inclined to recur, and with this view M. Trousseau had recourse, with apparent success, to the perchloride of iron—in the dose of from one to two grammes, given in the form of pills every four days. He also administered turpentine as a hæmostatic, and finally there was the restorative treatment by iron. At the last examination, the patient might be considered cured, as all appearance of the disease had gone, she had recovered her colour, strength, and flesh, and in a very few days would be in a state quite fit to leave the hospital.—*Journal de Méd. et de Chir. Prat.* and *Gaz. des Hôp.*, August 30, 1855.

EXTRAORDINARY CASE OF OPIUM EATING CURED. BY W. H. MYERS OF LOUDONVILLE. ASHLAND CO., OHIO.

In the habitual use of the narcotic opium, nothing is more striking than the facility with which the system bears its gradual increase, each successive dose being less efficient than the preceding one, if delayed until the action of the former has terminated. The truth of this will be made sufficiently evident by the following case :—

In the fall of 1853, a physician came under my observation who had habitually used opium as a stimulus for *six years*. Its effects during the first part of this period were, as usually described, exhilarating; a calm, cheerful, hopeful state of feeling existing, with freedom from care, dreamy reverie, and pleasing hallucinations. But these had long ceased, and he was now suffering pangs from the same drug that had afforded him such varied enjoyment, all its pleasures being replaced by morbid fancies and sensations of the most unpleasant character. At this time he was using the enormous quantity of from *fifteen to eighteen* grains of the sulphate of morphia in twenty-four hours, taken at intervals of four hours and continued during the night. Thus, the repetition of the stimulus followed so quickly and regularly, as to anticipate the appearance of the consecutive debility, the unavoidable consequence of its abstraction.

I will only describe a few of the most prominent symptoms :—one of these was a constant and fixed delusion, presaging impending death; this feeling haunted him day and night, accompanied with a morbid dread, sometimes definite and often ill defined. His behaviour, temper, spirits and conversation partook of this predominant belief, with a disposition to intrude the subject which was the basis of his thoughts. Accompanying this condition was a belief that his intellect was disordered, or becoming so; loss of control over his mental operations; neglect of business; walking restlessly at night; sleep almost banished; terrific and distressing dreams; altered sensibility; numbness; pricking in the hands and fingers; tinnitus aurium; hallucination of voices and conversations in his presence; muscæ volitantes; phantoms or fancied visions; vertigo; muscular contractions; uncertain walk; diminished strength; inability to stand or rise in bed, and varied action of the heart as regards its frequency and force. The abdominal symptoms were sense of sinking, weight, fulness and dragging, accompanied by unusual constipation, and a distaste for food.

After treatment had commenced, a set of new symptoms were developed; his bladder became excessively irritable, accompanied with profuse diarrhœa and gastric disturbance, nausea, vomiting and great prostration; with a disagreeable sense of formication in the scalp. While in this condition attempts to quit the injurious habit were made, but ineffectually. A number of physicians of celebrity were consulted, who all suggested a recourse to substitutes. Extracts of belladonna, aconite and cannabis were tried, but without deriving the least benefit from their use. Reason was already partially dethroned, and death seemed inevitable. After all these repeated failures I addressed a letter to Prof. Dunglison, of Philadelphia, asking his advice, who, in reply, wrote as follows :—

Philadelphia, February 17*th*, 1853.

Dear Sir,—There is no safety for your friend, except in a fixed determination to diminish daily the amount of the narcotic, not by guess, but by absolute weighing out of the daily allowance. To give it up all at once, would be followed by most distressing phenomena; but if he gradually diminishes the amount consumed, the privation may be tolerated, and the pernicious evil be ultimately got rid of. It will require, however, the most *dogged* resolution to carry into effect this plan, otherwise it must fail. In the depression and sinking that may arise, he may have recourse, three or four times a day, to from forty to sixty drops of the *spiritus ammoniæ fœtidus*, of the London and Edinburgh Pharmacopœias, formulæ for which are to be found in the Dispensatory of the United States. The further details of treatment will suggest themselves to you. The most important thing is to establish a clear indication, and to let nothing interfere with its being energetically fulfilled. No substitute can be used for the narcotic which will not be ultimately as injurious; and experience has taught me that the plan I have suggested to you has been entirely satisfactory and successful. That it may be so in the case on which you consult me, is the sincere wish of your obedient and humble servant,

Robley Dunglison.

This plan, persevered in with the most determined resolution, diminishing almost imperceptibly, the dose from day to day, was entirely successful in twenty weeks in reclaiming our victim, and restoring him to the society of his friends in full possession of his faculties and in the enjoyment of good health, entirely cured of the habit of opium eating, and free from all its evil effects.

CHOLERA IN SPAIN.

From recent intelligence, it appears that the cholera continues to commit immense devastation in the peninsula. The city of Malaga still presents a melancholy spectacle. Notwithstanding the extensive emigration to the villages, and beyond the province, the victims of the disease increase in number. On the 8th of August the deaths were 84; but on the day following they were 87 before 9 in the evening. On the 7th, after 114 had been interred, there remained a number unburied, for want of hands and time to perform the office. Commerce has shut its stores; even the principal streets are deserted, or trod only by the physicians and the ministers of religion. In the custom-house, nearly all the inmates have been attacked, and the greater portion have perished.

Murcia, newly invaded, is in a state of consternation. All who have means have fled, and industry is paralyzed, although the extent of the destruction does not yet justify so extreme a panic. In Guadalajara the havoc is pitiful. In many of the rural districts, the destruction is so extreme, that the harvest cannot be collected. A multitude of villages are painfully destitute of aid and of resources, some being without medical practitioners, and some without priests. In Illana, with 400 families, 400 individuals have been attacked. In Yesora, with 140 families, 130 have suffered, and 53 have died. In Madrid, to judge from the most recent reports, it appears that the epidemic is on the wane.—*Semanario Medico Español* (*Madrid*), 16*th August* 1855.

SURGERY.

A GRAIN OF COFFEE IN THE AIR-PASSAGES—FATAL AFTER BEING RETAINED NEARLY THREE YEARS AND A HALF.

On the 22d March 1844, a little girl, aged eighteen months, whilst playing on the floor, was suddenly seized with a violent spasmodic cough, threatening strangulation. The mother recollected that the child had been amusing itself with an uncooked grain of coffee, and immediately suspected that it had been swallowed and was the cause of all the difficulty. The room was carefully searched, but the grain could not be found; and this but confirmed the mother's conviction. Dr Maris saw the child an hour or two after the accident; she was then in a disturbed sleep, with hurried breathing and suffused face; in a few moments she was aroused by a return of the same agonizing cough and spasm. Various expectorants were now administered, but without relief; and the remissions and exacerbations of the cough continued to recur every few minutes.

After an interval of about six hours, I was requested to see the child; but found her so much oppressed and restless, that it was almost impossible to auscult with any degree of accuracy. The respiratory murmur on the right side was exceedingly feeble, and, in a great measure, masked by loud sonorous râles, whilst on the opposite side the murmur was unusually loud; throughout the entire chest, the percussion was perfectly natural. The history of the case, confirmed by the physical signs, left but little doubt as to the nature of the accident, and tracheotomy was accordingly proposed. This, however, was rejected by the father, under the impression that the symptoms might be owing to some other cause, and in the hope that, even if our fears were well founded, the coffee grain might be spontaneously expelled. Upon several occasions, when the violence of the cough indicated that the grain had been driven into the larynx, the child was inverted, in the hope that gravity might assist in its expulsion; but this expedient only tended to increase the alarming symptoms, and was therefore abandoned. From this time, I did not see her until the early part of August, 1847, a period of more than three years. Dr Marais, however, informed me that, a few weeks after the accident, the paroxysms of cough gradually became less violent and of shorter duration, whilst the intervals were much longer, lasting sometimes for several weeks, during which the child was comparatively comfortable, and gained both flesh and strength, but never entirely free from difficulty of breathing. Finally, hectic fever and purulent expectoration set in, and she became greatly emaciated. Upon examination, I now found dulness on percussion over the lower part of both lungs, but particularly on the right side, and the respiratory murmur throughout was completely masked by loose mucous râles; the prostration, however, was so great as to preclude the possibility of a more extended examination. From this time she gradually sank, and finally became comatose, and died on the 24th of the month—just two weeks after my last visit, and about three years and five months from the time of the accident.

The body was examined the following day. Upon opening the thorax, care was taken to remove both lungs, with the trachea, larynx, and œsophagus adherent, without incising these parts; gentle pressure was now made with the finger along the course of the trachea, from below upwards, until the larynx was reached, when the grain of coffee was seen to escape from the chink of the glottis. It, apparently, had undergone no important change from its long stay in the air-passages; it had not materially increased in bulk from absorption of moisture, as might have been expected, nor was it even coated with pus, mucus, or other animal matter, and its usual colour was well preserved; upon the application of considerable force, it could, however, be slightly flexed. The mucous membrane of the larynx and trachea was thickened, minutely injected, and coated throughout with tenacious muco-puriform matter; and this condition of things extended throughout the bronchial tubes, as far as examined. At the bifurcation of right bronchus, the membrane presented a worm-eaten appearance, and was much softened, though not absolutely ulcerated. The entire right lung was hepatized, and about one-half of the left lung, at its lower part, was in a similar condition. No abscess or tubercular degeneration existed in either lung, nor were there any pleuritic adhesions.

The condition of the right bronchus, at its bifurcation, renders it highly probable that the foreign body was lodged the greater part of the time at this point. The chronic inflammation of the left bronchus and lung may have been owing to an extension of the inflammation from the right side, where it undoubtedly first commenced; or it may have been induced by the occasional lodgement of the coffee-grain in the left bronchus, after having been driven into the trachea or larynx. Judging from the size of the foreign body, compared with the caliber of the bronchus at the tender age at which the accident happened, it is highly probable that the air must at the first have been almost entirely excluded from the right lung; and this must have been still more the case when lodged in the left bronchus, owing to its comparatively small size. It has been admitted by all observers, that when the foreign body is irregular in shape it is more apt to become permanently fixed in the bronchial tubes, and at the same time to interfere less with the respiratory movement, than when it is round or oblong, and thus completely plugs up the tube, as was the case in the present instance; and this fact fully explains the great fluctuations in the symptoms.—*American Journal of Medical Sciences,* April 1855.

REMOVAL OF A PORTION OF THE LEFT LUNG, BY T. B. HALE, M.D.

To the Editor of the Medical Examiner.

Dear Doctor,—The following case has been communicated to me by my friend, Dr Hale of Minersville, Pa. Believing it to be unique, I am desirous of giving it to the profession through the pages of your valuable journal. The removed portion of lung is now in my possession. It is pyriform in shape, somewhat flattened, and measures about 6 inches long, 2½ inches in diameter at the largest end, and 1 inch in diameter where it was cut across. It appears quite destitute of blood, except near the small end, where the capillaries appear quite full. The specimen is somewhat contracted in size from the action of the alcohol in which it is preserved.—Very respectfully,

Port Carbon, Dec. 21, 1854. J. H. Wythes, M.D.

C. D., an Irishman, aged 25 years, rather small in stature, but stoutly built, with a well developed chest, being engaged in a fight while intoxicated, received a stab in the left side, parallel with the ribs. The wound was about 1¼ inch long, and appeared to have been made with a sharp, clean-cutting instrument. About fourteen hours after the injury he was visited by Dr Hale, who found, upon examination, a portion of the left lung protruding from the thorax. He was sitting up in bed, having the protruded portion supported by a broad bandage. He complained of no pain, and had suffered but little from loss of blood. There was no cough or difficulty of breathing, but on taking a full inspiration the protruded lung became filled with air, and drops of venous blood oozed from its substance. The protusion was so tightly strangulated at the wound in the thorax that after an hour and a half spent in unsuccessful efforts to restore it, Dr Hale made a cautious atttempt to enlarge the wound in the interosseous space. Fearing, however, the effect of a large opening into the cavity of the pleura, he was induced to desist, and consider the propriety of excision. As the protusion looked extremely unhealthy, from the length of time since the accident and the efforts made to reduce it, making gangrene not an improbable result, excision seemed to be the only resource. Dr H. contemplated applying a ligature at the base of the protruded lung, but on making two experimental incisions into its substance, and no blood flowing, this was not judged necessary, but the mass was at once excised, and the remaining portion pushed back through the wound in the interosseous space, the orifice of which was then closed with two stitches and strips of adhesive plaster. The patient was then directed to lie quietly on his back, and a mixture of two parts syr. prun. virgin., and one part syr. opii prescribed; a table-spoonful to be given every two hours for the purpose of allaying irritation in the bronchial tubes. On the second day, Dr Hale found him in a favourable condition, and on the sixth day he walked five miles to visit his physician, suffering in no manner from the loss of the portion of lung. For the last three months he has laboured constantly in the coal mines, without inconvenience.

The speedy recovery of the patient appears to have been due to adhesive inflammation between the adjacent walls of the pleura, through the wound in which the protruded lung was strangulated. In all probability the pulmonary and costal pleura and the substance of the lung are all connected in the same cicatrix.—*Philadelphia Medical Examiner*, February 1855.

INTRODUCTION OF A STICK OR SWAB HANDLE MORE THAN TEN INCHES LONG INTO THE STOMACH—ITS EXIT BY AN ABSCESS—CURE. BY FRANCISCO GARCIA Y GARCIA, OF DAIMIEL (MACHA BANJA.)

Mateo Sanchez de la Nieta, native of the town of Daimiel, aged between 45 and 50 years, contracted a syphilitic disease, which, after a time, affected the fauces and posterior part of the mouth. His attending physician, a distinguished practitioner, directed that the parts should be cleansed several times daily, and for the purpose constructed a swab with which he made the first applications, but not being sufficiently long the patient had it spliced until the stick was more than ten inches (una tercia) in length.

One afternoon in the month of September, he was alone in his house and complying with the directions of the practitioner; but the presence of the swab, the stimulus of the medicament, the contraction of the muscles of the pharynx, a spasmodic movement, the carelessness of the patient, or all conjoined, caused him to relinquish his grasp of the instrument, which remained in the back part of the mouth. While thus embarrassed, one of his daughters came in, who perceiving him in distress, and not able to answer questions, gave him water, which he asked for by signs, which not being able to swallow, was returned by the mouth and nostrils, with suffocating effect; some persons in the vicinity seeing him sought a physician; in the meantime, which was not long, the stick descended the œsophagus, the upper extremity fixing itself between the pomum Adami and the anterior portion of the fork formed by the sterno-cleido-mastoideus, producing a salient angle on the left side, which the patient indicated to the bystanders. A suffocating condition recurring, caused him to abandon it, and with the movements it disappeared not only from sight but also from the touch of the practitioner, who arrived after the patient had recovered from the paroxysm which followed that state. They gave him some spoonfuls of an anti-spasmodic mixture, which he swallowed with less difficulty than the water given him by his daughter. He recovered his speech somewhat, and complained only of anguish and smarting in the throat, and towards the left side a little above and front of the nipple of the same side, which gradually ceased, disappearing on the fourth day; the patient, physician and friends, being left in an unhoped for quiet.

Eight days subsequently the patient felt, deep in the left side of the epigastric region, sharp pains, running towards the last false ribs, increasing every hour, accompanied with gastric irritation and febrile symptoms, which led the physician to suggest a resort to spiritual aid. On the following day (the 14th from the ingestion of the stick) the greater part of the gastro-peritoneal symptoms, which indicated great peril, abated, the patient remaining almost without fever from the 17th to the 20th. Under these circumstances the practitioner proceeded to a minute examination of the patient, and ascertaining the existence of the stick in the cavity of the stomach, proposed to the patient the operation of *gastrotomy*, to which he objected his age, his severe suffering, his present comfortable condition, and finally that he would not submit, though it would cost him his life.

The practitioner forced unwillingly to yield to the entreaties of the patient, and abandon all operations, directed him to eat, assuring him his condition was not as flattering as he supposed. At the expiration of ten days (26th of the accident) the patient presented himself at the house of the physician, asking him to examine an *apostume*, as he called it, which had appeared far below the nipple of the left side. The next day it was opened by a crucial incision, and a large quantity of pus, both well formed and bloody, was discharged; with the evacuation the patient grew worse, but four days after the incision, having improved somewhat, and feeling himself much better, without waiting for the physician, he determined to remove the dressing and cleanse the wound; a female neighbour, who was present to assist him, saw with wonder what appeared to be the end of a black stick in the opening of the abscess; encouraged by the patient, she seized the foreign body and drew it, and they saw with astonishment four or five inches of the stick of the swab projecting.

In the midst of the conflict of the two, they thought of and sent for Dr Povil, who came at once to the aid of his patient; he took the stick,—and assisted by the exit of pus, contractile movements of the stomach, muscles of inspiration and traction of the woman,—brought it to the surface, in *the intercostal space formed between the third and fourth false ribs of the left side*, as far as the point where it was spliced; then he seized the stick at the splice, fearing that the thread which bound it might give way, in consequence of putrefaction, which he presumed might have occurred since its ingestion: but this fear vanished when the point of the splice passing through the intercostal space, the thread was found unaltered; the extraction was continued until the extremity of the stick, to which threads or a frayed rag were tied, reached the external wound, where it stuck, causing new and sharp pains in the stomach, which, although they subsided, were followed by great distress and a soporose state. Having recovered, the practitioner continued his exertions, and introduced his thumb into the wound, and by forcibly depressing the inferior rib, succeeded in dislodging and extracting the entire swab just as it had entered the mouth 28 days before. It was followed by a flow of pus, considerable blood, and gastric juice through the wound, together with some partially digested alimentary substances which had been eaten in the morning.

Care was taken in dressing the wound to avoid the introduction of air into it. He was placed upon his back with head and shoulders elevated, ordered a strict diet, being allowed a few spoonfuls of acidulated water for drink. The stick was found to be of black poplar (Populus nigra), and more than a tercia (a third of a Spanish yard) or about eleven inches in length. The patient passed an uncomfortable night, but slept at intervals in the early part of the next morning. On the fourth day from the removal of the stick the wound was of a dark colour, owing to the presence of some coagula of blood; these came away the next day with the poultice, and the wound assumed a healthy appearance, and was completely healed in 26 days from the removal of the stick, and 49 from its entrance by the mouth.

This case occurred at Daimiel in the month of September 1832, and was well known among the people. The statement is from the patient before death and from his children who witnessed it. In 1834 Sanchez had a slight attack of cholera; but during the ten succeeding years he worked as a gardener and labourer without suffering from any serious indisposition; he remained fat and healthy until May 1844, when the writer began to practice in the town. He died in 1849 of an acute attack of pleura-pneumonia.—*Philadelphia Medical Examiner*, February 1855.

CASE OF TRAUMATIC PERFORATION OF THE STOMACH—RECOVERY. BY C. H. HAPPOLDT, M.D.

Thomas Anglissy, aged 17, received, February 10th, a wound from a bowie-knife, which entered at a spot three inches to the left of the middle of a line drawn from the ensiform cartilage to the umbilicus; and, from the testimony of bystanders, the instrument penetrated to the depth of about four inches. The patient had recently eaten large quantities of pastry and ground-nuts, and had drunk immediately before the accident a pint of sarsaparilla beer. Upon receiving the wound, he closed and wrestled with his opponent for some minutes, when he was taken away and conveyed in a carriage to his residence, where I saw him at five P.M., one hour after the infliction of the injury. The longitudinal direction of the wound was parallel to the axis of the body, and was three quarters of an inch in length; the edges were gaping widely, and there was no hæmorrhage. The garments covering the thorax were saturated with a colourless, inodorous fluid, and the circumference of the wound was encrusted with about an ounce of white lardaceous matter. Having no probe at hand, I could not ascertain the depth or direction of the wound, but from the fact of what appeared to have been the contents of the stomach having escaped through the external orifice, I concluded that the cavity of that viscus had been entered.

Trusting that the wound of the stomach would close and adhere by the contraction and quiescence of the organ, I brought the edges of the tegumentary wound together by a single suture, and applied adhesive straps and a compress and bandage, to prevent muscular contraction and the access of air into the abdominal cavity. The patient was placed on his back, and the twelfth of a grain of the sulphate of morphine was given every two hours, until he fell into a sound sleep.

February 11th, ten A.M.: Found patient with some fever; considerable tympanitis, and emphysema of the entire left side of the trunk, from the clavicle to the pubis. The lips of the wound are not adherent, being held in partial contact only by the suture and straps; and at each inspiration, when the bandage is removed, there is an expulsion of gas through the orifice. There are hardened spots in several places throughout the abdomen, which are tender but not very painful on pressure. Reapply compress and bandage; continue morphine, and allow milk-and-water as nourishment. Five P.M.: Fever increased, but very little thirst; pulse 120, moderately full; more tenderness of the abdomen on pressure; wound more painful. Ordered a flaxseed-meal poultice to be applied over the wound, and five grains each of Dover's powder and nitrate of potash to be given every three hours. 12th: Less fever; tongue less furred; but little pain in the wound or abdomen; thirst moderate; no appetite. Discontinue Dover's powder and nitrate of potash, and resume morphine; continue poultices and nourishment, as before. 13th: Edges of the wound in juxtaposition; a circumscribed redness and swelling perceptible around the wound; fever abating. Ordered tincture of iodine to be applied over the entire left side of the trunk, which is still emphysematous, and enemata to be given, as the bowels have not been moved since the occurrence of the accident. Continue other treatment. 14th: No difference in constitutional symptoms. The site of the wound is more tumefied and protuberant, indicating the suppurative process advancing within. Appetite returning; very little thirst; bowels have not been moved. Continue application of iodine and other treatment; increase the quantity of milk to half a pint in twenty-four hours. 15th; At my invitation Dr Cain is present. Very little fever; bowels have not acted. On removing the bandage, find that the suture has given way, and about half a pint of very offensive sero-purulent matter flows freely from the gaping orifice. We probe the wound, and find that its direction is within, and a little to the right, cannot detect an aperture leading into any cavity, but feel that the probe impinges on an elastic surface, which from its position appears to be the stomach. We cause the patient to drink four ounces of water, and raise him to the sitting posture, to ascertain whether the fluid will pass through the wound; but though some serous fluid flows out, we are not certain whether it is the water which was taken into the stomach or a portion of the sero-purulent matter which comes out more freely from the change of position. Continue poultices and other treatment; repeat enemata; allow beef-tea, together with milk-and-water. 16th: Abatement of all the symptoms; appetite increasing; bowels have been moved; hardened spots disappearing; feels pain in the left lumbar region, where there is a circumscribed swelling, on pressing which, and gradually approaching the wound, pus is forced out. This circumstance, together with the absence of peritoneal pain on making pressure, seems to determine the protuberance to be owing to the burrowing of pus from the vicinity of the wound between the abdominal muscles or fasciæ. Repeat experiment of yesterday, mingling the water of bitter almonds with the water, but cannot detect any odour in the serum which flows out of the wound, which appears conclusive that the wound of the stomach has closed. Discontinue morphine, continue other treatment; allow nourishment more freely. 17th: All febrile symptoms have disappeared; less pain and swelling in the lumbar region; emphysema diminishing, Continue treatment.

I was prevented from seeing the patient until the 21st (eleven days after the reception of the injury), when I found that the wound had closed, leaving a circumscribed induration of about four inches in diameter around its site. As there was no further indication to fulfil, I discontinued my visits, and did not see the patient again until the 18th of March. He informed me that he felt perfectly well after I left him, and had engaged himself on board of a vessel to work about the decks. On the 15th of March he was employed on the yards arranging the sails, which occupation required him to lean over the yard and bear heavily on the epigastric region. On his first essay he felt pain in the seat of his recent injury, which increased at each repetition of his task, until he was obliged to quit the employment and seek medical assistance. The site of the recent wound, and several inches around its circumference, was red, hot, and swollen, denoting suppuration within. I ordered poultices to be applied over the wound, and the next day, finding a thinning of the cicatrix, I applied nitrate of silver to hasten its giving way. When I saw him on the 20th, the wound had reopened, and the attendants informed me that about a pint of straw-coloured fluid had issued out. I probed the wound as I had done on a former occasion, and ascertained that the abscess was circumscribed, and had no connection with any of the abdominal cavities. The orifice was kept open three days, the cavity of the abscess becoming much reduced in size, and the purulent secretion diminishing, when it was allowed to close, and the patient returned to his occupation.—*Charleston Med. Jour.*

GUNSHOT WOUND OF THE HEART. BY J. M. CARNOCHAN, M.D.,

Surgeon-in-Chief to the State Hospital, Professor of Surgery in the New York Medical College, etc.

On the 27th of February, 1855, I was called in consultation to see William Poole, a young man, aged 33, of unusually athletic form and muscular development, who had been wounded two days previously in an affray with firearms. He had received a bullet wound in the outer aspect of the right thigh, two inches above the upper border of the patella. The wound, however, which created alarm among his friends, was situated upon the anterior wall of the thorax, about three quarters of an inch to the left of the mesial line, and about half an inch below a line drawn across the chest, from one nipple to the other. A bullet probe could be passed slantingly from right to left, along the track of the wound, for about an inch. At this depth the probe was arrested, and it was not thought expedient to use force in making farther exploration. Poole received his wounds during a deliberate onslaught made on him by some five or six persons armed with Colt's revolvers. The first ball took effect on the right thigh, and brought him to the ground. While thus prostrate, another assailant placed the muzzle of a pistol close to his chest, and discharged its contents. He immediately jumped up, and reeling towards a door, rested, as if stunned, against it for support, during some minutes. He then fell, exclaiming that he was dying, and remained senseless, cold, almost pulseless, and apparently moribund, for about four hours. From this condition he rallied, and became so free from the usual symptoms of severe injury, that his medical adviser, Dr Putnam, considered that the ball had really not penetrated into the thoracic cavity, and my opinion was sought to corroborate or dispel this favourable view of the case.

I found him sitting in bed, his back resting on pillows as a support, apparently at ease, and conversing with numerous acquaintances, who had come to visit him. His countenance exhibited no expression of anxiety, and he answered placidly and without effort the questions I put to him. His pulse was 80 in the minute, the respiration easy, the surface of the body normal in temperature and moist. The stethoscope revealed the existence of no difficulty in the respiratory passages, and the normal *tic tac* of the heart beat with healthy precision. There were no signs of inflammation or of effusion into the pericardium.

With such freedom from morbid symptoms, I was disposed to concur with his medical adviser in auguring favourably of the case; for although it might be inferred from the external character of the wound, that the ball had passed somewhere into the cavity of the chest, it was not impossible that it had become lodged in some position where it remained innocuous.

The previous treatment had been gently antiphlogistic; mild aperients, diaphoretics, acidulated drinks, and low diet. The consultation resulted in a continuation of a similar mode of treatment, with the injunction that he should be kept in a state of absolute bodily rest, and free from every cause of mental excitement, as I felt far from certain that he had not sustained mortal injury.

The symptoms in Poole's case illustrate in a remarkable degree some of the peculiarities of wounds of the heart, and also the assertion made by Harvey, that the heart is not very sensible. I am informed by Dr Putnam, who saw him at one o'clock on the morning of the 25th, about fifteen minutes after the wound was received, that the patient was at first nearly pulseless, was insensible, and that respiration was performed with great difficulty. In this condition labouring also under the ordinary signs of shock to the system from a gunshot wound, he continued for about four hours, before any signs of reaction were manifested. Vomiting now occurred; this was followed by increased action of the heart, and sensibility gradually returned.

During the same day (25th) he continued improving, and on the evening visit, the pulse beat 84. The skin was moist and natural, tongue healthy, with no unfavourable symptoms otherwise. No external hæmorrhage had occurred from the wound, nor had any evidences of internal hæmorrhage been evinced by vomiting or expectoration.

26: The wound was examined more particularly, and no traces of the bullet could be found, nor any special indications manifested of its presence in the cavity of the thorax. Symptoms about the same. 27th: I saw the patient for the first time, and found him in the favourable condition already stated. 28th: Complained of slight headache; pulse 86; bowels not having been moved, a gentle aperient was ordered, by which the pain in the head was relieved. At times the patient had complained of transient and slight pain about the region of the heart.

March 1st; Was called in to see patient a second time. Had slept well; pulse 80; respiration natural; appetite good; skin moist; action of the heart natural. He stated that he felt no pain or unpleasant symptom, except weakness, remarking, however, that he felt well enough to go out. 2d: The patient perfectly comfortable; pulse 82. 3d: Patient so well that, upon visiting him, for the third time, by request, he was found receiving his friends, and, contrary to previous injunctions, conversing freely with them. Enjoined repose. 4th: No untoward sign connected with either the functions of circulation or respiration. During the day, he received, against positive orders, the visits of more than a hundred people, with whom he conversed. His own statement was that he felt quite well. 5th: Dr Putnam was sent for early in the morning. At eight o'clock A.M., the patient was found in a high state of irritability: pulse 120; skin hot and dry, and complains of pain generally;

respiration troubled and more frequent. An aperient was ordered, by which the symptoms were much alleviated. 6th: Was again requested to see the patient. Pulse 100; countenance anxious; the adnata tinged yellow; complained of debility, but said he had no pain about the heart; signs of effusion. 7th: Passed a restless night, notwithstanding the administration of an anodyne, pulse 120; countenance more anxious; respiration much troubled; inability to remain in the recumbent posture; symptoms gradually becoming more grave.

At two A.M. Thursday morning, his attending physician was sent for. The patient was now rapidly sinking; pulse almost imperceptible, and with difficulty counted; respiration short, frequent, and difficult; extremities cold; countenance pallid and hippocratic. From this time he continued to sink, and expired, without a struggle, at five o'clock.

Autopsy seven hours after death.—The body was in a state of perfect preservation, and showed a powerful and well-developed organization. The surface of the body presented three orifices of gunshot wounds: two on the external side of the right thigh, a short distance above the patella, by which apparently, a ball had made its entrance and exit respectively, and one on the anterior aspect of the chest, three quarters of an inch to the left of the median line, and about half an inch below a line drawn across the chest, from one nipple to the other. The examination revealed that all the organs of the body were in a healthy condition. The sternum and cartilages of the ribs having been partially elevated, a bullet probe could be passed without difficulty, slanting from right to left, through the wall of the thorax, at the place of junction of the cartilages of the fifth and sixth ribs with the margin of the sternum. The sternum being completely elevated, the pericardium was seen to be much distended, and on its surface, in continuation with the external wound, was observed a rough spot, which proved to be an opening into the cavity of the pericardium, thinly closed by the exudation of plastic material. The right and left cavities of the pleura were free from effusion, and the lung on each side was in a sound condition. The pericardium was found filled with serous fluid, tinged with blood, and was so distended that it encroached very much upon the lungs on both sides. Upon opening the sac of the pericardium, and removing the large quantity of serous fluid, the external surface of the heart and the serous lining of the pericardium were both found to be entirely covered with plastic exudation, presenting all over signs of high inflammatory action. A cursory examination of the heart in position did not disclose the presence of any foreign body. It was afterwards taken out, and upon a careful examination, a bullet, one inch in circumference, was found enveloped in a delicate cyst, and imbedded, to the depth of a quarter of an inch, in the muscular tissue of the septum, between the right and left ventricles, about midway between the apex of the heart and the base of the ventricles. Its locality was only indicated by the sense of touch, for as the wound had entirely cicatrized, there was no outward visible sign of its presence. Obviously, the cause of death was inflammation of the pericardium and heart, and its results.

This case is one to be added to the few already on authentic record showing that penetrating wounds of the heart are not always immediately mortal. It has, moreover, peculiar features which will render it remarkable in the annals of surgical pathology. Several cases are mentioned in which patients have survived one or more days the effects of penetrating and non-penetrating wounds of the heart, inflicted by cutting instruments, and also of non-penetrating wounds inflicted by *gunshot.* But the peculiarity of this case is, that although the wound was a penetrating gunshot wound, leaving the ball deeply buried in the tissue of the heart, the patient survived for a period of time so long as to encourage the hope of recovery. This position of the ball discriminates the case from that mentioned by the French surgeon, Latour, where the ball had not penetrated deeply into the heart, but rested on its surface, partially encroaching upon the muscular wall of the heart, and enfolded partly by the pericardium. The autopsy of this case also revealed that the wound was not only closed and cicatrized, but that a cyst was in process of formation around the ball. By this case, also, it is established, that hæmorrhage is not necessarily a consequence of a gunshot wound of the heart; for the serum found in the pericardium was merely tinged with blood, and there was no coagulum. The absence of hæmorrhage may be accounted for by the conical shape of the ball, and by its direction; two circumstances which favoured its passage between the muscular fibres of the superficial layer of heart, without severing them, and caused it to rest slantingly behind the anterior coronary artery, without wounding it.—*American Med. Monthly*, April 1855.

MIDWIFERY.

ON THE TRICHOMONAS VAGINALIS OF DONNE. BY MM. SCANZONI AND KOELLIKER.

The trichomonas vaginalis, first described by Donné, and afterwards successively regarded as an infusory animalcule (Donné, Dujardin, Raspail), as a species of acarus (Froriep, Ehrenberg), and as a cell of uterine epithelium (Lebert, Valentin, J. Vogel, Siebold, Wagner), has recently been made a subject of research by MM. Koelliker and Scanzoni, who have discovered in it all the characters of the true infusoria, and such as closely resemble its description by M. Donné.

The trichomonas has never been found in the mucous secretion of the neck of the uterus, as would have occurred had it really been merely one of the vibratile cells. Those who have imagined them to consist of these bodies, have been misled by the fact of the preparations examined, having been treated with water, which is destructive to these animals, swelling them, arresting their movements, and speedily destroying them altogether. If, however, we examine pure vaginal mucus microscopically, we find a considerable number of infusoria of an elongated shape, perhaps ovoid or pyriform, from 0.008 to 0.018 millimetres in size, having at one extremity two or three long flagelliform filaments, with somewhat short vibratile ciliæ, and at the other extremity a slender, stiff, and non-contractile tail.

These little animals, which are extremely active, cannot, according to MM. Scanzoni and Koelliker, be the consequence of a venereal affection, as they are found in the vaginal mucus of nearly all women. They, however, attain their greatest development in undoubtedly morbid conditions of this secretion. —*Gazette Hebdomadaire*, May 18, 1855.

ON OBSTINATE VOMITING IN PREGNANCY.

The intractable vomiting which sometimes accompanies pregnancy, forms one of its most serious complications; constituting as it does, an affection where all remedial measures are too frequently unsuccessful, while its persistence endangers the life of both mother and child. We cannot therefore be too anxious to multiply those resources which seem to afford a chance of success, whether they be of a nature merely empirical, or founded on the principles of rational medicine. Several methods of treatment of one or other description have recently been brought forward, and among these the application of leeches and belladonna to the neck of the uterus.

Dr Négrier of Angers, believing that the vomiting of pregnancy was owing to the sympathetic extension (*irradiation sympathique*) to the stomach, of an inflammatory irritation of the neck of the uterus, suggested its treatment by the application of leeches in this locality, which method has been adopted by M. Clertan with success.

Again, M. Bretonneau, entertaining the idea that the vomiting arose from a spasmodic rigidity of the uterus, which resisted the distension consequent upon the growth of the foetus, has had recourse to the employment of belladonna frictions over the hypogastric region, or its immediate application to the uterine neck by means of a pessary, and in many cases he has thus also met with fortunate results.

An opportunity of testing the efficacy of these two methods, was recently afforded to M. Dubois at the Clinique d'Accouchements. Unfortunately, before the treatment was commenced, the patient became desirous of leaving the hospital, and M. Dubois had an opportunity only of confirming the statement of M. Négrier, that an inflammatory state of the uterine neck generally existed in these cases, as in this one the redness and irritability were very well marked.

With regard to this subject, the interesting researches of M. Cartaya of the Island of Cuba, may be mentioned, as affording some valuable statistical information. Fifty-eight instances of this obstinate form of vomiting have been arranged by him, according to their mode of termination, into five different groups. In the first of these he enumerates such cases as terminated fatally, but without abortion taking place; in the second, those where recovery followed the occurrence of abortion, or merely the death of the fœtus without its immediate expulsion; in the third, those terminating in recovery without abortion; in the fourth, those where death followed abortion; in the fifth, those cases where recourse was had to the induction of abortion, or of premature labour. It need not be stated, that in the majority of those cases, medicines in the greatest variety, and of the most energetic description, had been tried without effect.

Of these 58 cases, 24 belonged to the first group, that is to those where death occurred without abortion taking place. Those of the second group, or where a cure followed either abortion or the death of the foetus, were 11 in number. The instances of cure without abortion were only 3; one of these which had been seen by MM. Chomel and Dubois, a patient under the care of Dr Koreff, is undoubtedly an example of remarkable and unexpected spontaneous cure. This woman, reduced to the most extreme degree of marasmus, and looked upon for certain death, was suddenly attacked by profuse diarrhoea, which appeared to have produced a salutary revulsion, and was succeeded by her recovery. The second case was that of a cure following the application of leeches to the neck of the uterus, on account of the inflammatory action there. This is one of the cases previously alluded to as being treated by M. Clertan. In the third, the cure was effected by the use of alcoholic stimulants and champagne, for which the patient appeared to entertain a particular and excessive prediliction.

In the fourth order of cases, those terminating in death subsequent to abortion, the number was 3 also: in these instances abortion did not occur until recovery was hopeless.

The fifth group, those cases in which premature labour or abortion were artificially induced, he has subdivided into successful and unsuccessful cases, there being 14 of the former, and only 3 of the latter. In three instances where premature labour was induced, both the mother and child were saved.

In conclusion, then, we find in 58 examples of intractable vomiting during pregnancy, 30 cases of death, and 28 of recovery. Of these 28 recoveries 11 were ascribed to the occurrence of abortion or the death of the foetus and its subsequent expulsion; 2 to the influence of therapeutical remedies; and 1 to the occurrence of critical diarrhoea; 14 to the artificial induction of abortion, or premature labour.

The principal object in adducing these facts, is to draw attention to the important nature of the affection to which they relate, and the resistance it offers to the therapeutical remedies hitherto employed in its treatment; and to impress upon medical men the necessity of multiplying those means and resources which observation and experiment may suggest as applicable to the difficulties arising from this serious complication in utero-gestation.—*Gazette des Hôp., July 21st,* 1855.

EXTRUSION OF THE EYEBALL OF THE FOETUS, HAPPENING IN TWO SUCCESSIVE ACCOUCHEMENTS IN THE SAME MOTHER.

This extraordinary occurrence has been described by M. Hofman of Burgsteinfurt, and is deserving of attention, not only on account of its rarity, but also in a medico-legal point of view, as being calculated to arouse suspicions of the culpability of those in attendance on, or connected with, such cases, if not to lead to their criminal accusation. The following is a summary of the facts of the case :—

M. Hofman was hastily summoned as medical attendant, and on his arrival found the child born, and in a bath. The infant was a girl, at the full period, strong and well formed. The right eye was hanging out of the orbit, upon the cheek, attached by a few muscular fibres, and surrounded by some loose cellular tissue. About three quarters of an inch of the optic nerve was still attached to the eye, and the ophthalmic vein and artery were torn off close to it. The cornea was bright and transparent, the eyelids were swollen and congested, and the orbit was filled with a grumous fleshy-looking mass. The child did not appear to suffer much, and the head, which was of normal dimensions, showed no depression on any part. The extruded eye was removed, and in a few weeks the eyelid, under appropriate treatment, recovered from the effects of the injury.

The same woman, having again become pregnant, again came under the care of M. Hofman, who found that labour proceeded slowly, and that considerable difficulty accompanied the delivery. The infant on this occasion was a boy, robust and well formed, and the head of the usual size. As in the last case, the right eye was extruded, and totally detached from the socket, which was still bleeding; the eyelids were neither red nor swollen, as in the last occasion; the orbit was filled with coagulated blood, and, above it, there was a fracture with considerable depression of the frontal bone. The child cried incessantly, and died the same day.

A third pregnancy, in which premature labour was induced, and which terminated fatally for the mother, afforded an opportunity of ascertaining, by *post mortem* examination, the cause of these remarkable injuries in the two former accouchements. The sacro-pubic diameter was only three inches, and the promontory of the sacrum projected very much. The transverse diameter was 4¾, and the oblique 4½ inches. No obliquity or exostosis existed in the pelvis, and the vertebral column was straight; the symphysis pubis was somewhat separated.

There seems no doubt that the depressed fracture of the frontal bone was produced by the promontory, and that both cases were merely different degrees of the same effect arising from the same cause. The compression, exerted through the frontal bone upon the roof of the orbit, produced expulsion of the eyeball to a certain degree, and the uterine contractions continuing to go on, the eye already protruded from its socket, became arrested by the prominence of the sacrum, and was dragged and torn from its connections during delivery. —*Monatsschrift fur Geburts: und Frauenkrank.* Dec. 1854.

SUCCESSFUL CASE OF EXTIRPATION OF THE UTERUS.

By G. Kimball, M.D., Lowell, Mass. Communicated for the Boston Medical and Surgical Journal. May 1855.

In furnishing a report of this successful case of removal of a diseased uterus, I have to acknowledge myself embarrassed somewhat from the want of a more perfect statement of details than I have been able to procure. Such a statement had been promised me by the physician in attendance after the operation. It has, however, never yet come to hand, and in despair of ever receiving it, I am now under the necessity of furnishing a report much less complete than I could have desired, relying mainly, for the essential materials of it, upon statements and details gathered from the several notes received before the operation, and during the patient's recovery.

The following quotation I make from a letter received from the attending physician, Dr A. Skinner—dated

"Vernon, Ct., Aug. 16, 1853.

"Dr Kimball. Dear Sir,—Mrs T., of this town, some time since called my attention to a small tumour situated in the abdomen, on the left side, and as low down as the region occupied by the uterus. This struck me at first as being possibly of serious importance, and requiring special attention. Some few months passed on, and I consulted Professor Knight of New Haven, regarding the case. But he added nothing by way of explaining the real nature of the disease, nor did he propose any new treatment of it. Some months after Dr Knight was again consulted—still no improvement. Up to this time everything in the form of prescribed remedies has failed in retarding the growth of the tumour, till now it fills a large space in the abdomen.

"No great inconvenience attends the *size* of the tumour, but the trouble is from hemorrhage during the period of menstruation. Every month a large quantity of blood is lost, reducing the patient extremely—even hazarding her life. Now, the question is, can this be a suitable case for the operation of ovariotomy? Is not the uterus implicated in the disease? The tumour is moveable, and, I should think, no very firm attachments had formed. But whence this profuse hemorrhage, if not from the uterus? The patient is thirty-four years old, and at the commencement of the disease was in robust health."

In reply to this statement, I could only remark that the account given of the case was characteristic of uterine, rather than ovarian disease; yet with this view even, I was not prepared to pronounce it altogether beyond the reach of remedy. On the contrary, rather than give up the case as utterly hopeless, I would propose, as a last resort, the removal of the uterus itself.

In accordance with this suggestion, I was requested to visit the patient at her residence. This I did on the 1st of September 1853. The suspicions previously entertained regarding the nature of the disease in question, were now fully confirmed, as the facts of the case came to be better known by personal examination. The first aspect of the patient indicated, most unequivocally, an extreme case of *anemia*. She lay in bed, upon her back, unable to sit up or turn upon her side without help. She had but just rallied from her last attack of hemorrhage, which had been frightfully severe. Another similar attack, if allowed to occur, was looked forward to as an event certain to be fatal. And in due course, this event was now liable to happen at any moment.

Upon examining the tumour, it was found, as had been previously stated, to occupy a very considerable space in the centre of the abdomen. Its form was globular—surface perfectly regular—moveable from one side to the other—evidently unattached by adhesions—elastic, without the least sign of containing fluid, yet less solid in its feel than if it had been a more fleshy substance. Its diameter apparently about seven inches.

Examined per vaginam, the neck of the uterus was found in its natural condition, both in position and size. The os uteri open rather more than natural; a sound readily passed up some four or five inches. The enlarged and diseased portion of the organ could not be reached by the forefinger—the entire bulk of the tumor lay in the abdominal cavity.

Without knowing the actual state of the case, one would have judged, from the appearance of the abdomen, that it was a case of pregnancy six months advanced. No lesion, organic or functional, of any other organ, could be detected. Indeed, but for this one difficulty, there seemed no hindrance to the recovery and enjoyment of perfect health.

The important question was now raised, whether the case was one that promised any chance of relief from a surgical operation? The operation proposed was the removal of the uterus by section through the abdominal walls. Extraordinary and hazardous as this suggestion seemed, the feeling was unanimously and unhesitatingly expressed, by every one present at the consultation, that this procedure offered the only possible chance of saving the patient from impending death. This conclusion was no sooner made known to the patient, than it was readily assented to—both she and her husband claiming that a chance of life by an operation, however small that chance might be, was better than the certainty of a speedy death.

The patient was now put in readiness for the operation by being placed on a properly elevated table, and brought under the influence of chloroform. Upon exposing the abdomen, and observing the small size of the patient, it appeared quite evident that in order to dislodge the tumor *entire*, it would be necessary to extend an incision from the ensiform cartilage to the pubis. But rather than do this, it was thought better to expose a part only of the tumor, and see what could be done by way of *enucleating* the diseased portion of it—thus reducing its bulk so as to allow its being drawn out through a comparatively small opening. Accordingly, an incision was made through the *linea alba* directly over the most prominent portion of the tumor, exposing it to the extent of about four inches. Another cut of less extent, through the uterine walls, brought to view the fibrous mass within. Observing that no bleeding followed this procedure, this last incision was prolonged to an extent corresponding with that through the parietes. Through this opening, a portion of the diseased mass, thus exposed, was suddenly and forcibly extruded, seeming, at first, as if a little additional force would be sufficient to dislodge it entirely from its connections. Attachments, however, firmer and more extensive than had been anticipated, rendered this part of the operation rather difficult; but being finally accomplished, and the uterus becoming at once greatly diminished in bulk, it was readily drawn out from the abdominal cavity, conformably with the plan adopted in the outset, and placed in the hands of an assistant.

A straight, double-armed needle was now passed through the organ in an antero-posterior direction, as low down as the supposed point of its junction with the neck, this part being, of course, left intact as regards its relation with the vagina. By this plan of appropriating to each lateral half a separate ligature, there was no great difficulty in making sure against all chance of subsequent hemorrhage; a consideration of great importance, in view of what might otherwise be very liable to happen.

The remaining part of the operation was very simple, and easily accomplished. It consisted of a mere amputation of the diseased structure by a single straight incision, carried across from one side to the other, and as near to the ligatures as was consistent with their secure attachment.

The parts having now been made as clean as possible, the wound through the parietes was brought together, and its edges secured with four sutures. Adhesive strips, and a compress wet with warm water and laudanum, completed the dressing.

The operation was somewhat protracted, lasting nearly or quite forty minutes; yet it was not accompanied or followed by any extraordinary or alarming degree of exhaustion. The amount of blood lost did not exceed four ounces.

After being laid in bed, the patient was troubled with nausea, and occasional vomiting, which continued for two or three hours. This, however, was probably the effect of chloroform merely. Upon its ceasing, an urgent desire, without the ability, to evacuate the bladder, came on, together with a severe pain in the lower part of the back. The first difficulty was readily relieved by the use of the catheter, the latter by a half-grain dose of morphine—which seemed not only to quiet the pain, but to induce what was then considered a comfortable night's rest.

For the subsequent history of this case, I am obliged to quote from letters received from time to time from the attending physician, Dr Skinner.

On Saturday, two days after the operation, he writes as follows: "At 12 o'clock yesterday, I was called to see our patient, and found her vomiting severely. Directed an enema of starch and laudanum, with counter-irritation over the stomach. This succeeded in checking the vomiting very soon. Spent the following night with her, and for the most part of the time she was quiet, and when disturbed at all, it was from nausea. Some fulness of the abdomen, with a little tenderness.

"Tuesday, September 6, (sixth day). We find our patient this morning (8 A.M.), comparatively comfortable. Monday, there was much tympanitis and tenderness of the abdomen. There had been considerable nausea the evening previous, and occasional vomiting. Two mild laxative enemas were given, but no evacuation of the bowels followed. Average pulse 110, and somewhat irregular.

"Last evening another laxative enema was given; and a few hours after, still another. This last was soon followed by a good-looking movement. Since this, there has been less restlessness. Starch and laudanum injections have been duly kept up. Less flatulence, and with the exception of two paroxysms of vomiting (one since I commenced writing this morning) the symptoms are generally more favourable. Let me add, that during last night there was some fever, face flushed, pulse 125. This morning some pus appeared at the lower part of the incision.

"Thursday morning, September 15.—Our patient is still alive and rather comfortable. Nausea and vomiting have been the worst symptoms since operation. Bowels have not moved since last Thursday. Tympanitis gradually improving. Pulse 100 to 120. Not much febrile action. We allow her a little very weak broth. We have succeeded in getting the full effect of opium by using laudanum injections—the only way opium could be tolerated."

From the date of the above, till January following, accounts of regular improvement were received as often as once every two or three weeks. On the 12th January, Dr Skinner wrote at follows:—

"Our patient remains much the same as when I last wrote. She is able to walk about the house, and looks nearly well. Countenance good; pulse strong; appetite good enough; bowels free; in short, everything about her *right*, except what is produced by the irritation from the *ligatures*."

March 1st, six months after operation, another communication was received, in which the ligatures are again alluded to as still attached, and causing considerable annoyance from mere local irritation. Again, directions were given to apply still more force. This was promptly done; yet the ligature remained firm.

Early in May following, I visited my patient at her residence, and found, as her physician had previously stated, "everything all right, except the irritation produced by the ligatures." Her personal appearance had so changed that I could hardly believe her to be the identical person I had operated on eight months previous. The recovery of flesh and strength—the healthy, florid colour of the cheeks—good appetite and perfect digestion, all indicated the return of robust health.

The ligatures, however, still remained an annoyance, producing a good deal of discomfort, particularly in the exercise of riding and walking. Another attempt to remove them was again unsuccessful, and from the pain that always followed these efforts, it was thought advisable rather to allow them to remain attached for an indefinite time longer, than to subject the patient to repeated failures. This conclusion seemed reasonable and safe, from the fact that their presence was looked upon as a mere *inconvenience*, and not implying any danger.

This visit, as stated above, was made early in May, eight months subsequent to the operation. From that time to the present, my further knowledge of the case has been only of an indirect character, yet quite satisfactory. From several individuals coming from the immediate neighbourhood of the patient (one of them recently), I learn that the operation is spoken of as perfectly successful, and the patient herself restored to health.

I have myself performed this operation in three instances. In one instance, as has been already shown, the result was successful. But in bringing before the profession and the public an account of an operation, the result of which I claim as singular, so far as the record shows, I should consider myself unjust, and culpably indifferent to my professional obligations, were I to withhold the fact that in two other instances of uterine extirpation, I have had the misfortune to lose my patients.

In my first operation, the circumstances attending it were very similar to those named in Mr Meaths's case—that is, the operation was begun with the view of removing a diseased ovary, and terminated in the extirpation of the uterus. Though feeling well assured in this case as to the correctness of my opinion regarding the nature of the disease I was about to encounter (an opinion, too, which, so far as I know, was concurred in by each of the several medical gentlemen present), my first incision through the abdominal parietes revealed at once the unexpected yet unmistakable fact that the tumor in question was no other than an enormous, irregular, lobulated structure ; the uterus itself being the only organ involved. My determination, in this aspect of things, was to desist from further prosecuting the operation ; but, upon consultation, another judgment prevailed, and it was finally concluded by a complete extirpation of the diseased mass, and with it, also, the whole of the organ with which it was connected. This patient survived the operation ten days. For the first six days the symptoms were comparatively mild—so much so, as to afford considerable hope of recovery. On the seventh day, however, the aspect of things changed for the worse ; and on the tenth day, as before stated, the case terminated in the death of the patient.

The second fatal case was the third, as well as last, in the order of time. The motives inducing me to operate in this instance were substantially the same as those stated in connection with the *second* case that had just resulted favourably, with this additional and important fact, that it was now shown conclusively and satisfactorily that the extirpation of the uterus was by no means a *necessarily* fatal operation. The case, however, terminated unfortunately. The patient died on the third day ; and upon *post mortem* examination, it was shown, but too clearly, that a ligature had slipped, and a hemorrhage in consequence was the immediate cause of death. But for this accident, there were as good reasons for expecting a good result as in the case immediately preceding it.

The foregoing cases make up the amount of my experience as regards this formidable operation ; and it will be observed that these cases all relate to one form of disease, viz., fibrous growths within the walls of the uterus.

Many other instances of a similar character have fallen under my observation during the last fifteen months ; but in none of them were there present those conditions which properly suggested a resort to an operation. The cases where such a procedure would be proper, are unquestionably rare ; yet my conscientious belief is, that cases now and then do occur where the extirpation of the womb is clearly justifiable and expedient. Moreover, the operation, desperate as it is, seems to be not merely one which the patient is fairly entitled to, but one which the surgeon, upon request, may feel himself *bound*, as a matter of duty, to perform, so long as by so doing he may *possibly* save the life of his patient, while otherwise he is sure to see her pass speedily to the grave.

Part Fourth.

MEDICAL NEWS.

THE MONTH.

The canvass for the Chair of the Practice of Physic in the University of Edinburgh is proceeding vigorously on the part of the different candidates and their friends. Since our last publication we have to record the appearance of two new aspirants for the vacant office—Dr Craigie of Edinburgh, for so long a period editor of the *Edinburgh Medical and Surgical Journal*, and Dr M'Cormac of Belfast. Dr Neligan of Dublin informs us that he is not, and never was, a candidate. As usual, contemporaries at a distance are at fault in giving what they, no doubt, consider to be correct information. A metropolitan organ assumes to itself the function of naming the "principal" competitors; and it also sounds the tocsin in deprecation of some impending "jobbing" of Edinburgh Chairs. At the time when our contemporary wrote, the wisest seer on the spot could not have oracularly fixed on the foremost three; and the result may probably show that the prophetic office has, in this case, been rashly assumed. As to "jobbing," we have no fear that the Edinburgh Town-Council as presently constituted, will lend its sanction to anything savouring of partizanship. Farther down in the scale of error, the *Dublin Medical Press* tells us, that "no promises are given, and no canvassing allowed." Our brother has here been sadly misinformed. It is true that the electors give no early pledges, and sometimes even keep their intentions to themselves till the day of election; but the most free and thorough canvassing is permitted in the case of every Chair in the gift of the Town-Council.

The examinations instituted for the appointment of assistant-surgeons in the service of the East India Company, ought to and will exercise an important influence on medical education. So long as degrees and diplomas could be obtained by recollection of lectures, aided by the note-book, or by hurried nights devoted to Tanner's Manuals, or by the oral cramming of the grinder, the indolent student could always make up for lee-way. But no waistcoat-pocket companion, or elbow mentor, will avail in "an examination for an hour, in the investigation of a medical and surgical case; in an examination for the same time in operations on the dead body, and in the application of surgical apparatus." Accordingly, to diligence in the lecture-room must now be added very strict attention to the hospital-wards, and the operating and pathological theatres. At present, it is true, that the examinations connected with these latter departments, are not over-rigid; but as the system acquires more publicity, the examining boards will undoubtedly become more exacting. We lately had a conversation with one of the examiners for the general civil service of the Company, who stated, that, in framing the questions in his section, he purposely constructed them so, that no mere exercise of memory would avail, unless the judgment had also been called into play. Medical students may, therefore, expect in their turn, that the simple enunciation of the *modus operandi* will not be accounted sufficient, unless they can also subjoin something as to the *rationale* of treatment. Schools as well as students will be put on their trial; but we augur the best results as to both.

The month has been prolific of a variety of complaints connected with the surgery of the war, both of an individual and of a class kind. Of the former description we have first the case of Mr Bakewell. This gentleman inserts an anonymous letter in the *Times* (but giving his name privately to the editor), in which he prefers certain charges against the medical department. Mr Bakewell is ordered from Scutari to the Crimea, but being unable to leave from indisposition, an investigation is made, in his absence, the charges are stated to be unfounded, and Mr Bakewell is ingloriously dismissed from the service; but, let it be noted, he is dismissed without being accused or heard in his own defence —a proceeding which, however consonant with the stern behests of martial law, does not square with the old-fashioned notions of British fair play. It is quite possible that the assistant-surgeon did wrong in appealing to the tribunal of Printing-House Square—quite possible that his charges were exaggerated, nay, that they were positively false, and quite possible that it is for the interest of the service that he should be expelled from its ranks, but still the forms of justice should have been observed; and hence, at best, even his enemies may be obliged to say of him, as Sir David Lindsay said of Cardinal Beaton,—

> "Although the loon is weel away,
> The deed was foully done."

The next individual grievance is that of Dr Hall, in connection with the death of Mr Stowe, the *Times'* almoner. The leading journal broadly charged Dr Hall with having prevented Mr Stowe's admission into any of the military hospitals under his control. Dr Hall denies the accusation, and writes the *Times* to that effect; and Mrs Hall, who is resident in this country, addresses two communications to the leviathan of the press, urging the insertion of her husband's letter in his own vindication. The *Times* replies by saying, that two letters from other parties "entirely disposed of all possibility of imputation upon Dr Hall as regards the treatment of Mr Stowe, and did so more effectually than Dr Hall's letter could do." It adds—"If Mrs Hall is of a contrary opinion, the editor will publish it immediately upon the receipt of a note from her to that effect." Well, Mrs Hall "is of a contrary opinion," and she does "send a note to that effect;" but after waiting for a week, although other defences of Dr Hall have appeared, the letter itself is not inserted, and, we presume, remains uninserted to this day. Here the *Times* is evidently at fault—first, in not printing Dr Hall's letter, as a matter of course, and subsequently in not publishing it, after having made a deliberate promise to do so. We are bound to add, in taking leave of the case, that we are at a loss to reconcile Dr Hall's statement, that he "never heard of Mr Stowe's illness till after his death," with the declaration of the Rev Mr Hayward, that he had applied to Dr Hall for the admission of Mr Stowe, but that Dr Hall gave satisfactory reasons why the request could not be complied with.

Of class complainants, we have the military medical staff in the Crimea, and the members of the newly-formed Turkish contingent. The army surgeons enumerate at least four special grievances,—1. That active field service counts nothing beyond home duty, whereas it is alleged, that in fairness it should be reckoned in the ratio of three to one. 2. That civilians are promoted over their heads. 3. That they get no step of rank to correspond with military gradation. 4. That the pay is inadequate—some receiving 7s. 6d. per diem, after twelve years' service, and others 13s., after two campaigns. It is also stated, that the facilities for absence open to other officers are not accorded to them. The complaints of the assistants in the Turkish contingent are limited, for the most part, to pecuniary emolument. It seems that they have to keep four horses and three servants, and the pay (25s. per diem) is inadequate to maintain these and other expenses. But medical woes are not confined to the Bosphorus or the Black Sea—we have also a cry from the El Dorado of the Ganges, as will be seen from a letter from India in another page. For one and all of these sores there is but one cure, and it rests with the profession itself. Surgical service, like every other kind of labour in the world, will bring no higher reward than the market price. If Government can get surgeons to go to the Crimea for 7s. 6d., or to Turkey for 25s., they will never give 10s. 6d. or 31s. 6d. Supply and demand are linked together by the inexorable chain of destiny, and no man has ever yet been able to wrench them asunder. Let medical men regard army appointments with a cold eye, and let them be deluded by no specious offers of pay till they have well counted the cost, and the authorities must surrender at discretion. Some of the Turkish contingent assistants threaten resignation—let them boldly act on the threat—let it be no *brutum fulmen*—and let their brethren at home act in unison, and the scale of pay and of treatment will infallibly rise. Everybody knows that the Admiralty paid no attention to the remonstrances regarding accommodation to assistant naval surgons, until it was found that supply fell short of demand, and then concession was at once made. We are sorry that to such a large and important class as our military and Indian medical officers, we have no other consolation to offer than a page from Adam Smith. But it were unworthy our position as journalists to recommend any other than the true remedy, tardy and discouraging as it may appear. The French are said to be scarce of surgeons; let it be marked if this do not lead to liberal offers on their part.

The Parliamentary Committee of Inquiry into the adulteration of food, drugs, etc., has published the first part of its report. The subject of food, in all its kinds and qualities, has chiefly engaged its attention. Much important evidence has been elicited; and we feel confident that the public at large will benefit by the exposures which have been made, though not, in the meantime, to the extent which many seem to anticipate. As the various reports of the *Lancet's* Analytical Commission and of the Parliamentary Committee have chiefly been conveyed in isolated paragraphs to the remoter districts of the country, much excitement has necessarily ensued on the perusal of what we are inclined to believe to have been very exaggerated statements. No cry is so formidable as that which intimates that "death is in the pot;" and Government, we think, has acted wisely in instituting the present investigation. The recess affords ample time for the maturing of opinions and the collection of further evidence; and we have little doubt that Parliament, when it meets, will deal with the question in a prudent and satisfactory manner. To our view, the most important subject which will engage the attention of the Committee is that of drugs and their adulterations. Such an inquiry has long been urgently demanded, and promises most beneficial results. Adulteration of drugs is not less important than that of food—certainly much more so than anchovy sauce and pickles, and will be more easily dealt with. The subject is not new to us in Edinburgh. It is now seventeen years since the College of Physicians published an admirable report, by Dr Christison, which embraces all that is essential in the evidence hitherto submitted to Mr Scholefield's Committee.

In noting Mr Simon's appointment as medical officer of the General Board of Health, we must recognize it as one where, to use a phrase fast becoming vulgarized, "the right man is in the right place." When such offices require to be filled, one looks with dread on the possibility of a job; but why should this be? One cause undoubtedly is, that although we have the machinery for training professional persons or others, to discharge duties connected with the promotion of public health, the machinery is not employed. Medical police is scarcely adverted to in our courses of Medical Jurisprudence, though associated with it in the title of the chair; while, in almost every University on the Continent, there is a chair of Public Hygiene, but in not a single College in this country is there any systematic course on the prevention of disease. We have now an admirable journal of public health; and we trust that the time is not far distant when the principles of sanitary science will be taught in all our medical schools. The subject is too important to be summarily referred to, and we shall take an early opportunity of discussing it at some length.

The recent proceedings of the Provincial Association at York will operate, we fear, very seriously against its extension in Scotland and the sister-island. The Association promised at one time to become a bond of union to the whole medical profession, and it was to be hoped that the time was not far distant, when as a body, they would be able, by this common link, to enforce on Government, with an united voice, their just claims to its legislative protection. Such a hope, for the present, must be deferred. *The late editor of the Association Medical Journal*, Dr John Rose Cormack, has sent in his resignation, and candidates have been advertised for to fill his office. Dr Cormack has announced his intention to commence, in 1856, a new weekly periodical, under the title of the *British Medical Journal*, and which is intended to be the organ of the whole profession.

LECTURE ON THE RETINA.

By John Goodsir, F.R.SS.L., and E., Professor of Anatomy.

(*Delivered in the University of Edinburgh. Summer* 1855.)

After a brief statement of the general aspect and the more obvious anatomical relations of the retina, a description was given of the intimate structure and connection of its elements, as they are arranged in the membrane from without inwards.

These elements are most satisfactorily examined in microscopic sections made at right angles to the surface of the membrane, after maceration in dilute solution of chromic acid. Viewed in this manner, it exhibits from the peripheral to the central margin of a successful section a series of strata, which may be distinguished as the bacillary, white cellular, grey cellular, filamentary, and limitary layers.

The bacillary layer consists of two kinds of bodies—the rods and cones. The rods are cylindrical or prismatic, with extremities transversely truncated, transparent, and of extremely delicate texture. The cones only differ from the rods in having their inner third, or two-thirds pyriform. These are arranged close together at right angles to the outer surface of the retina, with their external extremities applied against the inner surface of the choroid. Throughout the greater part of the retina the rods predominate, the cones being uniformly interspersed. In the neighbourhood of the yellow spot, the cones become more frequent; and in the spot itself, they alone constitute the bacillary layer.

The transversely truncated inner extremity of each of the rods is connected with the deeper structures of the retina, either by a conical appendage, which tapers inwards in the form of a filament, or by an ovoidal appendage, which also transmits a filament inwards. The inner extremity of each of the cones is terminated by a pear-shaped appendage, containing a nucleus, and having its stalk prolonged inwards, like the filaments of the rods.

The white cellular layer is composed of three strata—an outer, an intermediate, and an inner. The outer consists of the ovoidal nucleated appendages of the cones; of the ovoidal appendages of the rods which have such bodies attached; and of similar bodies in which the conical appendages of the other rods terminate. The intermediate presents a semifluid granular basis, through which numerous filaments pass from the outer into the inner stratum, in a direction perpendicular to the surfaces of the retina. These filaments, which issue from the outer stratum, are, firstly, the prolongations of the filaments which proceed from the nucleated appendages of the cones: secondly, the prolongations of the filaments which proceed from the ovoidal appendages of the rods possessing such; and, thirdly, filaments proceeding from the inner extremities of the ovoidal bodies, which are connected with the filamentary terminations of the conical appendages of the other rods. The inner stratum also consists of two sets of ovoidal bodies, each of the first connected with some one of the prolongations of the filaments of the cones, and giving off, at its opposite end, a similar filament; while those of the second set, similarly formed and provided, are connected with the prolongations of the filaments of the rods.

Towards the circumference of the retina, many rods may be found, connected by the filaments proceeding from their ovoidal bodies with a single filament passing into the inner stratum. This connection never occurs between the filaments of the cones, which are thus invariably independent of one another.

There may generally be found, a branch passing obliquely inwards from some part of the filament of the cone and rod, in its passage through the intermediate stratum, or from the ovoidal bodies of the inner stratum.

The grey cellular layer consists of a fine granular basis, such as may be seen in many parts of the brain; of numerous cellules, with distinct nuclei, nucleoli, and two, three, or four radiating and branching prolongations, as in the cerebro-spinal axis; of numerous blood-vessels; and of prolongations of the filaments of the rods and cones, passing inwards to the inner surface of the retina. It is extremely probable that the nucleated cellules of this layer are connected by certain of their prolongations to the filaments of the rods and cones; the prolongations of the former being continuous with the branches of the latter in the white cellular layer. It may also be confidently stated that, by means of others of their prolongations, the nucleated cellules of this layer are connected with the ultimate filaments of the optic nerve, which form the next layer of the retina.

The filamentary layer is composed essentially of the ultimate filaments of the optic nerve. These filaments, as soon as they pass off from the spot, enter the retina, lose their medullary sheath and dark margins, and assume a delicately transparent grey tint, and somewhat varicose form. They radiate in gradually diminishing anastomosing bundles all round; but, on the outer side of the optic nerve, they sweep in curves from above, and from below to a line which passes from the centre of the nerve outwards through the yellow spot, converging at the same time somewhat towards that spot. The terminations of the constituent filaments of this layer are probably all continuous with certain of the radiations of the nucleated cellules of the grey cellular layer. The meshes formed by the bundles of this layer afford passage inwards to the continued prolongations of the filaments of the rods and cones.

The limitary layer completes the retina on the inner side. It is an extremely thin, perfectly transparent membrane, which, although continuous throughout, can only be detached in minute portions, in connection with the terminal attachments of the filaments of the rods and cones; which terminate on its outer surface by expanding into conical brushes, or still more minute threads, which would almost appear to constitute the membrane itself.

At the entrance of the optic nerve, the bacillary, white cellular, and grey cellular layers, are necessarily absent; the limitary membrane alone covering the inner surface of the mass of nervous filaments, which, with the arteries, spread out on all sides.

Over the macula lutea the bacillary layer consists of cones alone, the filaments of which do not reach the limitary layer, at least at the fovea centralis, but terminate in the white cellular layer. The latter exists, except at the fovea. The grey cellular layer is distinct throughout; but towards the centre, and at the fovea, its granular stratum is deficient, the nucleated cellules being crowded together under the limitary layer. The filamentary layer is deficient as a lamina, over the entire macula lutea; but its constituent filaments may be detected in the midst of the nucleated cellules of the spot. The peculiar yellow pigment is diffused through all the textures, with the exception of the bacillary layer.

The structure of the retina is so delicate, and its investigation so difficult, that much remains still to be determined regarding the precise connection of its different elements. The structure of the bacillary layer having been more particularly examined by Gottsche and Hannover, and the white cellular layer by Bowman, Pacini traced the filaments inwards from the rods and cones into the white cellular layer. The discovery of the filaments themselves, and their passage inwards to the limitary layer, is due to Heinrich Müller, by whom, along with Kölliker, the general anatomical connections of the microscopic elements of the retina have been more particularly traced. According to H. Müller and Kölliker, the rods and cones are connected by what may now be denominated the Müllerian filaments to the limitary membrane; the various bodies which constitute the white cellular layer being connected with these filaments in the manner already described. The branch which proceeds from each of the Müllerian filaments in its course through the inner stratum of the white cellular layer becomes continuous with one of the radiations of one of the nucleated cells of the grey cellular layer; all the cells of this layer therefore being connected with all the rods and cones of the retina. The remaining radiations of the cellules of the grey layer passing inwards, form the commencements of the ultimate filaments of the optic nerve in the filamentary layer of the retina.

In reference to those parts in the structure of the retina upon which that impression is made, which when conveyed to the sensorium, terminates in the perception of light, it may be stated, that the non-sensibility of the retina at the entrance of the optic nerve, and its perfect sensibility at the macula lutea, as well as other considerations, prove that this function is not performed by the filaments of the nerve.

Kölliker concludes, by exclusion of the other elements, that the rods and cones, with the Müllerian filaments, are the structures on which objective light first impresses itself. He believes the seat of this impression to be in the rods and cones, and also probably in the inner ends of the Müllerian filaments. He has examined with great care the chemical and structural characters of these bodies, and has satisfied himself that they are nervous structures.

Brücke and Hannover conceive the rods and cones of the bacillary layer to be structures which reflect the light back again from the outer surface of the retina against the filamentary layer, on which it is thus impressed. Helmholtz, again, who does not admit the sensibility to light of this layer, believes the reflected light to act upon the grey cellular layer.

After having given an account of the observations and views regarding the structure and functions of the retina, which have been published within the last few years, and of which the foregoing is an abstract, Mr Goodsir concluded.

the lecture by a short statement of his own opinions on the subject. Having carefully examined the retina with these observations and views before him, he has succeeded in verifying the majority of the structures and relations described by Müller and Kölliker; but he cannot coincide with the latter in opinion, that the rods, cones, and Müllerian filaments are nervous structures. They have neither the general aspect nor the anatomical relations of mere nervous textures. Each rod or cone, with its Müllerian filament extending inwards to the limitary membrane, with the ovoidal bodies developed on it, would appear referable rather to the class of structures to which the touch-corpuscles and Pacinian bodies belong. They are structures developed around the extremities of the ultimate filaments of the optic nerve, for the purpose of placing those extremities in the necessary position and circumstances for being impressed by the rays of light. The ultimate nerve-filament enters the Müllerian stem of the rod or cone as it passes through the white cellular layer. This filament is probably, as has been stated, a radiation from one of the grey cells, which if they be collectively connected to all the rods and cones, as well as to the filaments of the optic nerve, may safely be considered, as Kölliker has pointed out, to be a retinal ganglion, intermediate between the sentient points of the retina, and the sensorium, as well as between the corresponding points of its own and of the opposite eye. The ultimate nerve-filament, as it enters the Müllerian stem obliquely outwards, probably terminates towards, or at the extremity of the rod or cone, so as to have its transverse section directed outwards at right angles to the axis of the rod or cone. Let it now be assumed that a ray of light cannot impress an ultimate optic filament, except it impinge upon the free extremity in the axis—that is, at right angles to the transverse section—and let it also be admitted with Brücke and Helmholtz, that it is by light reflected from the bottom of the eye that vision is affected, then the theory of the retina in primary vision becomes more consistent. The divergent pencil of light which proceeds from any visible point to the eye, becoming convergent after having entered the refractive media, passing through the perfectly transparent retina, is probably brought to a point at the surface of the choroid or outer part of the bacillary layer of the retina, and is not entirely absorbed there, but is reflected as a divergent pencil. In passing towards the point of reflection, the rays of the pencil cannot impress any part of the retina, because they cannot impinge on any of its nervous elements in the only manner in which these can be affected—viz., against their free extremities at a right angle. Certain of the rays, however, of the reflected pencil—viz., those which pass along the axis of a rod or cone in the bacillary layer, will impinge in the proper direction on the contained nerve, and produce the lumeniferous impression. No confusion, therefore, can result from the multitude of convergent and divergent rays which are passing through the chamber of the eye, and through the retina, for those only are capable of impressing which are reflected along the axis of the cones and rods. The human sensorium receives from the retina the impression of a picture which is not continuous, but made up of detached points; as in the vision of the insect, which only sees an object by as many points as can transmit rays along the axis of its eye tubules.

Mr Goodsir is of opinion that the bacillary layer of the retina belongs morphologically to the transparent humours of the eye. The original bulb of the eye, whether it be a mere process of the brain, or, as he is inclined to believe, partly a pulp developed on the tegumentary membrane, forms over its entire free surface transparent (cuticular) structures. That portion of the free surface of the pulp which is directed towards the orifice of the eye follicle, developes the lens, the cornea, and the vitreous humour. That portion again, in contact with the inner surface of the follicle and which becomes choroid, developes the bacillary layer with its rods and cones. As the lens and vitreous humour increase in size the pulp or retina becomes cup-shaped, and intermediate between the two portions of the transparent structure developed from its original spheroidal surface.

VARIETIES.

Death of Professor Johnston of Durham.—It is our painful duty to record the death of this well known chemist and popular writer on scientific subjects. Next month we shall present our readers with a sketch of his life and labours.

British Association.—The Meeting of the *British Association* at Glasgow has passed off with great eclat. Few medical papers of any importance were read; the interesting communications on statistics will be noticed in our next number, which will also contain Dr Douglas Maclagan's valuable paper "On the Composition of Bread."

Appointments.—The Queen has appointed Jolliffe Tufnell, Esq., F.R.C.S.I., Regius Professor of Military Surgery in the Royal College of Surgeons, Ireland.

Mr John Simon, officer of health of the City of London, has been appointed medical officer of the General Board of Health, in pursuance of the Act of last session, continuing the Board, and authorizing the appointment by it of a medical officer. Amongst the candidates for the appointment vacated by the resignation of Mr Simon, are Dr Letheby and Dr Chalice of Bermondsey, along with Dr Waller Lewis and Dr Borlace Childs.

In the list of the staff of professors who have been selected for the Medical School of the Catholic University, we perceive the name of Dr Robert Lyons, who is now in the Crimea, engaged in the duties of his late appointment.

Lunatic Asylums, Ireland.—The commissioners of inquiry into the erection of Irish asylums, appointed by the Treasury, and consisting of Surgeon Wilkes, the President Medical Superintendent of the Staffordshire Lunatic Hospital, and Mr Donaldson the eminent architect of London, are at present making their official inspections.

Chair of Anthropology in Paris.—The Academy of Sciences proceeded, according to usual custom, to the nomination of two candidates for this chair, vacant by the nomination of M. Serres to the chair of Comparative Anatomy. At the scrutiny for the candidate who should stand first in the list, M. de Quatrefages obtained 32 votes, M. Gratiolet 12, M. Hollard 1. At the scrutiny for the second candidate, M. Gratiolet obtained 35 votes, M. Hollard 6, M. Jacquart 6. The candidates therefore presented by the Academy to the choice of the Minister of Public Instruction are, 1st, M. de Quatrefages, and 2d, M. Gratiolet.—*Gazette Médicale,* August 25th.

New French Works.—M. Cloquet is about to publish a monograph on Intestinal concretions. He presented to the Academy of Medicine, the other day, the collection of those productions which he has made and which he intends to figure. The classification he adopts, is founded upon the chemical constitution of the concretions, and the nature of their nucleus.

M. Verneuil read to the Academy of Medicine, at one of the late *séances,* an extract from a large work which he is preparing, on the anatomy and pathology of the venous system. The fragment read was on the subject of varices, and the mechanism of their formation. Contrary to received opinion, it is by the deep-seated veins that *phlébectasy*, or venous dilatation commences, according to M. Verneuil, at least in the lower limbs; and this fact, which he has assured himself of by careful dissections, promises not only to throw new light on the theory of the formation of varia, but, in the opinion of the author, to assist in the rational treatment of the disease.

Extraordinary Literary Piracy.—In the number of the *Berlin Monatschrift für Geburtskunde* for April 1855, there appears a paper, entitled "The

Statics of Pregnancy from English Sources," by Dr Helfft. In the course of it, the name of its author, Dr Matthews Duncan, is not mentioned, nor is the name of the *Edinburgh Medical and Surgical Journal* given in which it was published. We would call the attention of the distinguished conductors of the Berlin journal to this ill-judged conduct of their contributor, Dr Helfft.

BORDER MEDICAL SOCIETY.—At a meeting of the society held at Kelso on the 22d of last month, the president, Mr Alexander, after a suitable address, presented Dr Charles Wilson, in the name of the society, with a very elegant and massive silver inkstand. Dr Wilson, prior to his removal to Edinburgh, had long officiated as secretary to the society, and the inscription on the piece of plate bore, that to him the Border Medical Society owed its origin, and testified to the high sense entertained by his fellow members of his talents, extensive acquirements, and social worth.

THE WOUNDED AFTER THE BATTLE OF THE TCHERNAYA.—The following letter we insert, as illustrating the happy results of prudent foresight, and as highly honourable to the medical service in the French army :—

"Head-Quarters, August 18.

"Monsieur le Marechal,—The Russian army attacked, on the morning of the 16th, the positions occupied on the Tchernaya by some of our Divisions. Our success in repelling them was complete. This victory has furnished a new occasion to the functionaries of the *intendance*, to the hospital staff, and to the baggage train, of displaying that indefatigable zeal and that unhesitating devotedness with which they have been constantly animated since the commencement of the war.

"Independently of their fixed ambulances, which continue to act on the positions which they occupied precedently, the Divisions of the Tchernaya have each a flying ambulance and means of conveyance sufficient for daily wants. These means were augmented, at the beginning of the action, by reinforcements sent from head-quarters and from the reserve of the 2d corps. At a later hour, Intendant Paris de Bollardiere, who proceeded to the spot with the Division of the Imperial Guards, also caused the assistance which that Division could afford, to be employed in removing the wounded and aiding in the hospital service.

"Thanks to these measures, not a single wounded French soldier remained on the field of battle two hours after the combat ; and long before the end of the day all had been carried, in flying ambulances, to the stationary establishments of the 2d corps and of the Quarter-General, and had been there attended to. The carrying off of the wounded Russians was more difficult and more tedious, not only because the number was so much more considerable, but because it was necessary to go and bring them in part from the right bank of the Tchernaya, and under the fire of the enemy, who, from motives impossible to conceive, never ceased throwing shells on the ground, covered with their own killed and wounded, the whole time that our soldiers were employed in carrying off these latter. That operation was not terminated until yesterday morning.

"The number of wounded carried to the ambulances after this combat, was 810 French, of whom 46 were officers, and 1664 Russians, of whom 38 were officers, forming a total of 2474 men, added to the number, already very considerable, of those in our ambulances.

"I have said above that the wounded French were divided between the ambulances of the 2d corps and those of head-quarters. Whatever might be our desire to treat the Russians in the same manner as our own soldiers, the encumberment of the ambulances rendered it impossible to do so. The officers were sent to head-quarters, and 458 others were divided among the different ambulances. For the rest, I was obliged to establish a temporary ambulance at Kamiesch, turning to account the old wooden house camp, erected there during the winter for the newly-landed troops. Hospital attendants were furnished by the Brigade charged with the works of fortification at Kamiesch. The medical staff of the ambulance was very insufficient for such a task, but Admiral Bruat having been pleased to place at my disposal twelve surgeons of the fleet, all the dressings were effected rapidly; and yesterday, at ten in the evening, not a single wounded man remained without having been attended to. The administrative service and that of the pharmaceutical department are besides insured by the permanent hospital establishment at Kamiesch. Sub-Intendant de Preval, having been informed by the telegraph, had had this temporary asylum prepared in advance, and when the wounded arrived at Kamiesch, they found there beds, drinks, and broth ready for them.

"I am happy, M. le Marechal, in having a fresh occasion to inform you how well I am satisfied with the hospital service of the army. Every one has shown the greatest zeal and intelligence; but I cannot too frequently place before your Excellency the names of the two principal heads of the service, M. de Seganville, sub-military intendant, and M. Scrive, physician-in-chief to the army.

"To-day the ships and frigates of the squadron, and the steamers of the administration, will carry to Constantinople about 2000 sick and wounded, so that the number in our hospitals will then be nearly the same as before the battle.—I am," etc. "BLANCHOT."

AN INDIAN GRIEVANCE.—*To the Editor of the Medical Journal.*—SIR,—In No. 171 for March 1855, page 275, you express your surprise at the result of the examination for the H.E.I.C. Medical Service. If you peruse the following statement of the *pay* of the Queen's and Company's Service, perhaps your surprise will be less.

Queen's Without Expatriation.		Company's With Expatriation
7s. 6d.	Assist.-Surgeon under 10 years' service,	6s. 6d.
10s. 0s.	" above " "	6s. 6s.
13s. 0s.	Surgeon under 10 years' service, ...	No such thing.
15s. 0s.	" above " "	10s. 6s.
17s. 0s.	" " 15 years' "	
19s. 0s.	" " 20 " "	
20s. 0s.	" " 22 " "	
30s. 0s.	Deputy-Inspector, ...	20s. 0s.
40s. 0s.	Inspector-General, ...	25s. 0s.

Moreover, the Queen's assistant-surgeon is promoted in about ten years, while the Company's rejoices in being styled assistant always for fourteen, frequently for seventeen, years.

True, there are Indian allowances, but at an age when officers of the line, with average luck, get the allowances of captain, the medical officers get those of lieutenants, and at an age when the medical get captain's allowances, the military are majors and lieut.-colonels, with the large allowances attached to those ranks, which the doctor may esteem himself fortunate if he ever obtain at all.

Look at the pay table in the Queen's army list, and you will see how much better Her Majesty pays the medical than the military officer. In the Company's service the latter is much more highly paid,—not so much in the pay attached to the individual rank, as in the disproportionate number of assistant-surgeons, and the paucity of those above the rank of surgeon, there being no staff-surgeons, and the number of deputy-inspectors (superintending surgeons) ridiculously small.—Yours obediently, AN ASSISTANT-SURGEON of 15 Years Standing.

Central India, 15th June 1855.

MEDICAL DEBTS—PARTICULARS OF BILLS.—It has been ruled in Stockton county court in the case of Coates *v.* Hornce, "That whatever might be the practice of the profession, if a patient demanded a bill of particulars, a medical practitioner was just as much bound to give it as those in other lines of business." The plaintiff charged for attendance and medicine in a slump sum.

Calling in a Second Medical Man.—Clark *v.* Martin. Martin's wife had a difficult labour, and the plaintiff called in Dr Murphy to his assistance. He charged £1, 1s. for himself, and a like sum for Dr Murphy. Negligence and unskilfulness were alleged by the defendant, but the judge, while holding both these charges disproved, refused to allow the guinea paid to Dr Murphy.

An Honest Quack.—"An old man," said M. Renardt, on a recent occasion in the Academy of Medicine, "who was possessed of a panacea against rabies, proposed to me to try experiments with his remedy. As we approached a cage in which a decidedly rabid dog was confined, he rushed towards it and presented his arm to be bitten. I stopped him, not without difficulty, and while I was endeavouring to persuade him to give up his intention, this man made a sign to his own son to go and get bitten that he might try the remedy upon him. The son was in his turn prevented, and we then made the following experiment:—the foam of the mouth from this dog was inoculated into three sheep, two dogs, and two horses; the specific was given to one of the sheep, to one of the dogs, and to the two horses. As it happened, the disease broke out in those very animals in which the remedy was used, while the remaining sheep and the dog which were not treated escaped. We may judge from this example to what a faulty conclusion we should have been led, if, by chance, the contrary result had occurred."

The Philosophy of Drunkenness.—The guests sucked in the joyous fire of the decanters, and kept it smouldering in their inmost recesses, with a bliss only known to the heart which it warmed and comforted. Their eyes twinkled a little to be sure; they hemmed vigorously after each glass, and laid their hand upon the pit of the stomach, as if the pleasant titillation there was the tangible part of their enjoyment. In that spot unquestionably, and not in the brain, was the acme of the whole affair. But the true purpose of their drinking—and which will induce men to drink or do something equivalent as long as this weary world shall endure, was the renewed youth and vigour, the brisk, cheerful sense of things present and to come, with which, for about a quarter of an hour the dram fermented their systems. And when such quarters of an hour can be obtained, in some mode less baneful to the great sum of a man's life—but nevertheless with a little spice of impropriety to give it a wild flavour—we temperance people may ring out our bells for victory.—*Hawthorn.*

PUBLICATIONS RECEIVED.

On the Nature, Treatment, and Prevention of Pulmonary Consumption. By Henry M'Cormack, M.D., London.

Statistics, and Treatment of Typhus and Typhoid Fever, etc. By Magnus Huss, M.D. (translation), Stockholm. 1855.

On the Pathology of Hooping-Cough. By Graily Hewitt, M.B. Pp. 34. London.

Transactions of the State Medical Society of the State of New York. Albany, 1855.

L'Eau amère de Friedrichshall. Par le Dr Eisenmann. Wurzbourg, 1855.

Annual Report of the Royal Lunatic Asylum of Aberdeen for 1855.

Report on the French Laws and Ordonnances for the Regulation of Noxious Trades, etc. By Dr Waller Lewis. 1855.

Experiments as to the Existence of Sugar in the Urine of the Fœtus. By W. D. Moore. Reprint. Pp. 8.

On the Os Sacrum, and its Mechanical Relations, etc. By J. Matthews Duncan, M.D. Pp. 16. Reprinted from the Edinburgh Medical Journal.

On the Mode of Presentation of Dead Children in Labour. By J. Matthews Duncan, M.D. Pp. 7. Reprinted from the Association Journal.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*Notes on the Application of Statistics, to Questions in Medical Science, particularly as to the External Causes of Diseases.* By W. P. Alison, M.D., Edin., D.C.L. Oxon., Emeritus Professor of Practice of Medicine, Edinburgh.[1]

It has so frequently and so plausibly been urged, against all the inquiries and studies which are termed Statistics, that the form of such reasoning may be applied to the support of almost any proposition, that it becomes an object of very considerable importance,—in the view of any one who is truly convinced of the importance and frequent practical application of such inquiries,—to point out the circumstances of any question, or departments of any science, in which this kind of information is truly requisite, and the conditions under which it may be trusted. This is especially true of the science of Medicine, because there is one great department of that science,—that which we term Etiology, or the doctrine of the external causes of diseases, in which our knowledge is acquired almost entirely in this way. It is in very few cases only, that our knowledge of the essential or intimate nature, either of diseases or of the powers in Nature which excite them, enables us to form any anticipation of the effects of those powers; and it is simply by *empirical* observation,—facts observed and recorded, and the frequency of their recurrence noted, although not explained,—*i.e.*, it is by the mere *force of numbers*, or by *statistics*, whether stated exactly in that form or not,—that our information on that subject, and practical rules for the prevention or treatment of diseases, founded on that information, are acquired.

I have elsewhere stated,[2] what seem to me to be sufficient reasons, for the application of Statistics to inquiries of this kind being more frequently and obviously required, than in any of those which are made, either into the nature of diseased actions (or of vital actions in general), or the power and mode of action of remedies. The questions which we propose to ourselves in Etiology are truly

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[1] Read to the Statistical Section of the British Association at Glasgow, Sept. 1855 (by Sir Archibald Alison).

[2] *British and Foreign Review*, etc., January and April 1854.

simpler than either in Pathology or Therapeutics,—they involve little or no exercise of judgment, simply the observing and recording of facts, according to directions which are made known, and the sufficiency of which can easily, at any subsequent time, be estimated;—the sources of fallacy connected with them are *less numerous;* and, more especially, we can usually remark this, as to the observations by which we can fix on those antecedents of a disease, to which we ascribe the power of producing it,—that the *positive observation,* of the alleged effect following the application of the cause, is supported by a large body of *negative observations,* often not stated in words, but truly essential to the validity of the inference; and, therefore, this class of observations is often more truly and efficiently statistical,—the number of individual cases really contributing to the result obtained, is very much greater, and the evidence afforded more decisive, than it can easily be made in the other departments of medical inquiries; sometimes, therefore, greater than those who have accustomed themselves only to physiological or pathological inquiries, or to watching the effects of remedies, can easily perceive.

The importance of this observation will not be denied, when we remember that this is the department of Medical science which is truly of the greatest practical importance. The knowledge of the external causes of diseases, is that which leads most directly to their prevention; and to the preservation of those lives especially, from which the greatest amount of labour of all kinds may be obtained, and which are, therefore, generally regarded as most valuable to a state.

In the course of the present century, improvements have been made in Medicine, which will bear comparison in their practically beneficial tendency, with those which have made this age and this quarter of the globe so illustrious, as regards the applications of any other Sciences to practical purposes. These have been almost exclusively in this department of medicine, and may be truly said to rest, as yet, almost exclusively on Statistics; anticipating, probably by several ages, any information within the power of the human race, as to the intimate nature of the phenomena which are thus recorded. It is simply by the force of numbers, attesting the simple fact of a disease, easily recognised, showing itself in many persons within narrow limits of time and space, and there only, that we have learnt how the poison of Small-pox may be diffused; and that it may be disarmed of its power over the human body, by being first taken into, and modified by its passage through, the body of the Cow, and then applied, in almost infinitesimally small quantity, to the human body itself, and there exciting a certain specific inflammatory process, absolutely devoid of danger, and incapable of communication through the medium of the air; and, what is still more inconsistent with the knowledge we have of other changes in nature, that this modifying and preserving effect on the human body, produced in infancy, continues equally perfect, in a great majority of cases, after 60, 70, or 80 years, if life shall continue so long,—*i. e.*, after we are certain that the body on which it has been produced, has been repeatedly *worn down and built up again*, so that the poison introduced into the structure in advanced life, can no more be said to come in contact with living matter which has gone through the process of vaccination in infancy, than, according to the paradox of an ancient logician, a man can be said to have bathed twice in the same water, because he has bathed twice in the same river.

So also it has been by simply empirical observation, and, therefore, by reference to statistics, that we have acquired within these few years, information touching the extension of another epidemic, less frequent, indeed, but attended with peculiar interest, and often with extreme fatality, the Puerperal fever, which enables us, with almost absolute certainty, to predict that its propagation, after the manner of an epidemic, may hereafter *always be prevented.* For, I believe, I may safely assert, that the statistical observations of Dr Semmelweiss, in the great Lying-in-Hospital at Vienna, where upwards of 6000 births take place in a year,—being in exact accordance with what has been seen in this country, have unequivocally shown :

1. That this disease is, in fact, a case of the Diffuse inflammation or Erysipelas, attended with the same peculiarities in the extension of the inflammation, and in the nature of the effusion, and the same variation as to the nature of the accompanying fever in different epidemics.

2. That one immediate exciting cause of this form of inflammation, which may always be suspected when it prevails epidemically, is the *cadaveric* poison,—often evolved, during the decomposition of the human body, from whatever cause death may have taken place; but during one stage of that decomposition only, viz., that early stage during which the *post mortem* inspections for the investigation of the cause of death are most frequently made.

3. That when this form of inflammation assumes the form of epidemic puerperal fever, the mode of its transmission from one patient to another, is by accoucheurs or nurses, themselves in good health, but to whose persons or clothes minute portions either of the *effluvia from others* already affected, or of this *cadaveric poison*, have become attached ; and

4. That when the obvious precautions are taken, to prevent any persons to whom, in either of these ways, the poison can have thus adhered, from acting as accoucheurs or nurses until effectually purified, no "epidemic extension" of puerperal fever is seen.

It is seldom, no doubt, that this last proposition can be submitted to so searching a scrutiny, as in the year 1846, at the Vienna Hospital, under Dr Semmelweiss, when the number of deaths after these precautions were adopted, was diminished by no less than 400 in that hospital alone, and in a single year ; but when it is added, that each of the propositions above stated is quite in accordance with observations made and recorded (although the bond of connection among them had unfortunately not been duly observed), in this country, whenever puerperal fever has been epidemic, whether on a large or small scale,—so that it would be easy to collect statistical evidence of the same kind from every such epidemic, wherever any record of the facts has been left, to establish each of these propositions,—the force of this statistical evidence becomes such as to justify the sanguine anticipation above announced.

Our information as to the mode of extension of the malignant Cholera, is, unfortunately, as yet less certain or precise; yet I think we may say it is so far advanced, that we may entertain a confident *hope* of its being very soon such as to disarm any epidemic cholera, in this climate, at least, of all its terrors.

I allude to that subject here, chiefly because I think it affords an example worthy of notice, of what I have already stated, as to the frequent misapprehension of the strength of evidence, simply empirical, or founded on statistics, which may often be obtained in inquiries of this kind.

I mentioned formerly in a paper on this subject, which I had the honour of laying before this Association at Birmingham, a *single case* which I saw in the year 1832, and which I have always maintained to have been sufficient, for any one who duly attended to the statistical evidence it afforded, to establish the proposition, that the disease is capable of propagation in this climate, by the intercourse of the sick with the healthy, without pledging us to any opinion as to the mode of communication, or as to the existence of other modes. Now that it is generally admitted, that the assertion then made was correct, the question for discussion now being (as stated by the Editor of the *British and Foreign Medical Review*), "*not* whether cholera is contagious or not, but *how often* it spreads *by the agency of human bodies* (*i. e.*, by *contagion*), and how often without that agency," (Journal for January 1854, p. 298.) I think myself justified in drawing attention to the grounds on which it was made; and which, I still think, amply sufficient to establish that mode of communication, without, of course, excluding others.

The reason of this strong expression of opinion was, that the case furnished a remarkable example of the evidence which, according to what was formerly stated, a single *positive* fact may afford,—quite of the nature of the *instantia crucis*, when supported by a large body of *negative* observations. The anxious expectation of the disease in the town, in 1832, the careful division of the town into districts, and appointing of stations and medical men to each, and the number, zeal, and intelligence of these observers, were known to be such as to justify our saying, that this was the very *first* case of the disease which ever originated in Edinburgh or Leith, in a person who had not left the town; and that for a time it was *an isolated* case, no other appearing for ten days, in a population of above 140,000 persons, many of whom were in circumstances, in all other respects at least, equally favourable to the appearance of Cholera, as this woman was;—as the subsequent appearance of the disease in many of them, during nearly a year that the disease afterwards existed in Edinburgh, proved. If the poison producing this "*nova pestis*," had no contagious property, this woman was not more exposed to it than any other of this large body of people; but if it had that property—in whatever other way it might be communicated,—she was undeniably and peculiarly exposed, as she was engaged in nursing her son, in a close confined room, who was ill of the symptoms of cholera, during the whole of the day preceding that in which she sickened and died; and he had passed the next preceding night in a house in Musselburgh, where patients in the malignant disease then was, and had been for weeks previously. Here, then, was a fair *instantia crucis*, to determine whether the transmission of the disease, from place to place, known to be at that time a frequent event, was or was not dependent on intercourse of healthy persons, with those previously sick of it; and the affection of this one person, who had that intercourse, contrasted with the non-appearance of the disease in the 140,000 was, as I maintain, *decisive* evidence.

Many cases, equally decisive, have since occurred, of which I have been informed, on the *first* appearance of a disease *previously unknown* in a town or district, carefully observed;—*e. g.*, at Arbroath in 1853, where there was clear proof that the two first persons, of 15,000 inhabitants of that town, who took Cholera, "had just returned from Dundee, where they had visited persons ill of cholera;" their affection, therefore, proves nothing as to the efficacy of intercourse with the sick, in exciting the disease, rather than merely visiting a particular locality;—but the next *six* who took it in Arbroath,—the *first six* inhabitants of that town who took cholera without leaving the town, had repeated and close intercourse with those already affected before they took it; and the inference as to the contagious property is drawn, not from their taking the disease, nor even from their taking it at that time, and in rapid succession, but from their being *the only inhabitants* of Arbroath who took it, during the first week of its existence in that town;—*i. e.*, the positive evidence of the *six* who were known to be exposed to that cause, is supported by the *negative* evidence of the *fifteen thousand* who could not be shown to be, and the immense majority of whom certainly were not, so exposed.

I have great hopes that we shall soon have statistical evidence to establish a proposition which no other evidence known to us could justify our admitting, but which, if established, would not only reconcile most of the conflicting statements on this subject, but serve as a guide to almost complete security from any epidemics of this disease in future; viz., that the poison of cholera, *like other known animal poisons*, is developed during the decomposition of the animal matter, the appearance of which is most characteristic of the disease, —that which constitutes the "*rice water stools*,"—but only in a *particular stage* of that decomposition, not immediately after its formation in, or discharge from, the body; and again, not after the decomposition has gone to a certain length. All this can be proved only by Statistics, but is quite susceptible of proof in that way. The last proposition above stated—that no poisonous property is attached to any part of a body dead of cholera, after a certain stage of decomposition has been passed, seems nearly ascertained from the number of instances in which dissecting-rooms have been supplied with bodies of persons dead of cholera, for many weeks together, without any of the students attending them being affected. That the peculiar matter of the cholera evacuations, during its decomposition, perhaps especially in dry air, has a peculiarly poisonous quality, was, I believe, first suspected by Liebig, and partly by the analogy of the poison already mentioned, causing erysipelatous inflammation and puerperal fever,—and also of the *sausage poison*, repeatedly observed on a large scale in Germany, which is developed during a certain stage of the decomposition of the animal matter of those sausages, and disappears when their putrefaction has so far advanced.[1] That the cholera can be communicated to animals by inoculation with this matter, of the peculiar rice water stools, has been sufficiently proved by the experiments of Dr Lindsay in this country; and if a few more experiments shall give results similar to those of M. Thiersch, at Munich, I think we may assert that the proposition above stated, is *statistically* proved. "Dr Thiersch collected the intestinal contents, or the evacuations, of cholera patients, and let them decompose under the influence of air and heat. From day to day he dipped into this matter pieces of filtering paper, which he dried, for subsequent experiments on white mice. Two of these animals at a time were exposed to infection for four days, by having a square inch of the filtering paper, thus prepared, moistened with water and mixed with their food. Each mouse took thus $\frac{1}{2000}$th gr. daily. The results were as follows:—The preparations from the matter during the first day of decomposition were *innocuous*. To this succeeded a period of from six to nine days, during which decomposition went on, and preparations from the matter in this second period of decomposition, caused disease in 30 out of 34 animals, and death in 12 of the 34. The symptoms were peculiar and characteristic. The hair fell off, the ears dropped, there was languor, then discharge from the bowels, first of white, then watery matter, the urine lost its smell, then was suppressed, the appetite became *depraved*, so that the animals would fill their stomachs with wool; there was no apparent sickness, but such tonic muscular contractions that they seemed dead sometime before death. On dissection, accumulation of blood in the vessels of the small intestines was invariably found, their contents *watery*, with *abundant epithelial flakes* (just similar to those found in persons dead of cholera);

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[1] See *Letters on Chemistry* (3d Edit.), p. 229, and Appendix, No. 3.

the cortical substance of the kidneys passing into fatty degeneration, the bladder empty, the blood and the contents of the intestines answering to the test of ready mixture with amygdalin, as in the cholera of man,—which will not appear in the healthy animal. To this a third period of decomposition of the matter under trial succeeded, in which these poisonous effects were very slight, or not observed at all."—(See *Medical Times* and *Gazette*, Nov. 25, 1854.)

We have already a statement by Dr Budd, of statistical observations made on villages in England, where the entrance of Cholera appeared to be prevented by such expedients as these observations immediately suggest, for receiving the rice water evacuations of cholera patients on linen or cotton, and burying or burning, or otherwise effectually destroying their substance, during that period, thus indicated, after they have been passed, and before they have entered on the morbific decomposition; and we have sufficient statistical evidence of the importance of another measure,—which was first adopted, I believe, at Edinburgh in 1832, and has since been recommended by the Board of Health in London, and adopted in different places, although not so generally or satisfactorily as could be wished,—founded on the merely empirical statements I have made as to the communication of the disease from the sick to the healthy, and its apparent adhesion to particular, often very limited, localities, viz.,—the establishment of *houses of refuge* for the reception of all inhabitants of houses or rooms which might become infected with cholera in any town; not themselves affected, nor required for the care of the first cases that might occur. Here such persons might be lodged in pure air, regularly fed, preserved from cold and from other (frequently concurrent) exciting causes of the disease, and treated with due attention to cleanliness, immediately on any symptoms of cholera showing themselves. The London Board of Health report, that they had information of 1691 persons taken into these houses of refuge, from rooms where there were patients in cholera, and of these, only 33 became affected with cholera, and only 10 died. In cases of which I was myself informed, in Edinburgh, at Glasgow, and at Oxford, during different epidemics, 1010 persons were admitted from sick rooms into such houses of refuge, of whom 40 took the disease, and 15 died; whereas the experience of Dr Hamilton of Falkirk, of 251 cases of cholera appearing in 86 houses, where no such means of separation existed, gives only a fair idea of the extent to which successions of cases will often be observed, in confined air and dirty districts, possessing no such resource.

I am happy to say, that so far back as November last, having written to Dr A. Smith, at the head of the medical department of the army, on the subject of the decomposition of the rice water stools, as the probable cause of the propagation of cholera, and of districts becoming *tainted* with the poison of that disease,—I was informed by him that he had directed the attention of the medical officers in the Crimea to the facts now stated, so that if the disease shall appear in a malignant form in that army, we may hope for at least accurate and truly statistical information as to the reality of that opinion.

Again, as to the Yellow Fever, so frequently becoming epidemic in the hot climates, although we cannot boast of having acquired information either as to the nature of its cause, the essential character of the morbid change it produces, or the power of any remedy over it,—yet by simply empirical observations, *i. e*, by Statistics, we have information to the following effect, as stated in reports in Germany and France, on inquiries conducted by order of those governments, on a large scale, and considered by committees containing the names of Humboldt and Dupuytren, that it is a disease *endemic*, almost exclusively, "in districts nearly on the level of the sea, never appearing beyond 48° of north latitude, nor without a previous temperature of 72°,—only in certain circumstances propagated by contagion," but when epidemic, always *confined strictly to certain localities;* so that the practical rule of immediately evacuating, *i. e.*, removing *all* the inhabitants of places where it is declared to exist, and has formerly prevailed, is *incontestable*, and "of such proved utility, as will always justify its rigorous execution."

Without dwelling farther on the effects of Malaria, in this or any other climate, which we can only expect to be satisfactorily explained when pathology shall be considerably more advanced than at present, I may merely add, that such collections of facts have been made, and are now frequently repeated, as to the places and circumstances in which it arises from the earth, and the laws according to which it extends and multiplies,—considered merely empirically or statistically,—as we may confidently expect to be successful in disarming this cause of disease likewise of its terrors, long before the nature of the change produced by its action on the living body, or the rationale of any line of treatment of those who may be affected by it, shall become known.

The case of Epidemic Scurvy, resulting in different cases, as is now satisfactorily established, from different deficiencies in the Diet habitually taken,—the efficacy, therefore, of different kinds of diet in counteracting this form of disease,—still more remarkably, the power of small quantities of vegetable Acids in producing the same effect, and the extraordinary rapidity with which such changes of diet, and these acids, will produce their effect,—may also be stated as examples, on a large scale, and of the most satisfactory kind, of what is generally called the power of Art over a most loathsome and virulent disease,—but in reality must be regarded, now and probably long after our time, as results obtained by simply empirical observations of the course of Nature, statistically arranged, fortunately facilitated by so many of the subjects being organised bodies of men;—and which have distinguished the present age to a degree, which those who are not familiar with the medical writings of the last century will hardly conceive.

We have good reason to hope, that inquiries now on foot as to the external causes of Scrofulous, or of what is now usually called Tubercular disease, including pulmonary Consumption,—an inquiry which we must perceive to be more complex, and in which the operation of various causes must be recognised,—will be effectual in pointing out the means of counteracting that tendency in a very large proportion of cases of persons liable to it,—simply on the principle of empirical observation, enlarged and arranged in the form of Statistics, long before we shall have information as to the essential nature of the vital process, or mode of operation of the causes in question.

In illustration of this, I need only mention two facts, recently ascertained on so large a scale, that we have no doubt of their truth and importance, and which, even at present, may be said to be guides to successful practice in many cases only recently thought hopeless, although all that was previously known on the subject was certainly rather adverse than favourable to the supposition that they would ever be established. These are,—1. The good effect of the Cod-liver oil—if not of other animal Oils, on many cases of tubercular disease, in their early stage—provided only that it can be retained on the stomach to the extent of an ounce and a half or two ounces daily; and, 2. The almost complete exemption of the inhabitants of the Faro Islands from tubercular disease, notwithstanding that their climate, as regards cold and damp, is exactly that which, in this country, has been thought most favourable to it.

It was as a cause, often the most effective cause, of the Continued Fever of this climate, and from the conviction that this proposition could be established by statistical evidence, altogether independent of any inquiries into the intimate nature or pathology of Fever; and, farther, from a conviction that there was sufficient *statistical evidence* to prove that the ideas usually entertained in this country, as to the proper management of the great public malady, inherent,—more or less, in every community of human beings, from an early period of their social union,—were erroneous,—that I formerly laid before the British Association a number of details as to the Poverty and misery existing in many parts of Scotland and Ireland, and the urgent demand for an improvement of the Legal provision against Poverty. It may be remembered, that the opinions which I then stated (at Glasgow in 1840) were warmly opposed by my late excellent colleague and friend Dr Chalmers—I rejoice to say, without the slightest diminution of the kindness and cordiality with which he honoured me; but it was the repeated consideration of *statistical evidence*, that convinced me of the fallacy of his opinions, as well as those of Mr Malthus, on whom he mainly relied in making up his mind on this subject; and I may perhaps be allowed to state shortly, on this occasion, to what extent I consider that the present state of that subject, in the different parts of this country, is favourable to, I would even say decisive in favour of, the opinions which I then stated.

When many facts were stated, to prove the inefficiency of any then existing laws for the relief of Destitution in Scotland or Ireland, and to connect these with the prevalence of disease, and particularly of Epidemic Fever, in both these countries (greatly exceeding its amount in England), this is the objection immediately urged by Dr Chalmers and others, founded mainly on the statements and reasonings of Malthus—that the main cause of destitution is the ascertained natural tendency of the human race to increase more rapidly than the means of subsistence;—and that the natural effect of a legal provision against destitution is, to favour this natural tendency to increase, by weakening the motives to prudential conduct in young persons, and, therefore, to increase the evil. In reply to this, I acquiesced cordially in the major proposition of Malthus and Chalmers, as to the tendency to increase in the human species, beyond the means of comfortable subsistence, but *denied the minor proposition*, as to the effect of a legal provision (if regulated with common prudence) in weakening the prudential motives. I said, that the motive of this description, on which the economist should chiefly rely, is the principle of *Artificial Wants*, always to be expected, because known from experience always to show itself in the labouring classes, especially under a system of generally enforced education; when, therefore, occupied and protected from absolute destitution in early youth; and strongly contrasted with the habitually reckless, often brutalized, character of those of the poorest inhabitants of every country, who enjoy no such protection. I was at pains to point out, that I did not *attribute* the greater prevalence of destitution and misery, and epidemic fever connected with these, in Scotland and Ireland, and its much slighter extension in England, merely *to the want of effective legal provision* in the former countries, and its existence in the latter,—being well aware that various causes affecting the trade and manufactures of all these countries, might be assigned,—but I maintained that a comparison of these, and various other countries, furnished quite sufficient *statistical proof* that the existence of an effectual, even a manifestly excessive, provision against destitution, had *no such injurious effect in causing a redundant population as had been alleged;* and, again, that the absence of any such provision, especially where the demand for labour is necessarily very variable, had *no such beneficial effect* in restraining population; but, on the contrary, must be expected to *brutalize* the poor, and foster that recklessness of character which is very generally observed to attend redundancy, and augment misery among them.

I maintained that the *onus probandi* rested with those who asserted that legal enactments intended to give effect, in the manner most equitable towards the higher ranks, and most effectual towards the lower, to the great duty of Charity, written from the beginning on the hearts of men, and enforced by the frequent and positive injunctions of the Gospel, had really an effect opposite to that which was intended; and I endeavoured to show, by an appeal to facts, statistically arranged, that this was a mistaken opinion; in fact, the very reverse of the truth.

The subject was somewhat complicated, particularly by the circumstance of the English Poor Law having been, for a long time, administered in a manner which was admitted to be an abuse, so far as regards the general principle of *out-door relief* to *able-bodied poor;* a mode of relief which, I believe, should always be regarded as *exceptional;* but I think I may say, that the most general opinion of those who attended to the facts stated during that discussion was, that the arguments adduced in favour of the practical inference, drawn by Malthus and by Chalmers, from their principles, were fallacious; and that the laws for the relief of the poor in Scotland required revision; and, therefore, that the Association, which had previously been formed at Edinburgh for procuring an official inquiry into pauperism in Scotland, and which published two Reports, in January and April 1841,—the effect of which was to direct the attention of the late Sir R. Peel to the question, when he attended her Majesty to Scotland in August 1842,—was justified. We may now add, that the effect of the New Poor Law, passed in August 1845, and the operation of which has been made known by the Reports of the Board of Supervision, which have been published annually since, has been on the whole satisfactory. When we observe that the number of parishes making use of poor-houses in Scotland, both as means of relief and as tests of destitution, which was only 4 when the inquiries began, is now 62, including almost all the larger towns,—so that there is now accommodation in these houses for upwards of 9000 persons, although the whole number lodged there in July 1853, was under 6000; that the whole population for whom these houses are available was, in 1852, 1,442,000, or one-half the population of Scotland (see Report in 1853); and that the whole sums expended on the legal relief of the poor have amounted, for several years past, to about L.500,000 a-year, whereas, in 1840,—when the inquiries, which led to the change were begun, they were only L.140,000,—it becomes obvious that a change has taken place in the management of the poor, of such extent, that it would be unfair to judge finally of its character for some time to come; indeed until some public misfortune, or some cause of distress affecting a large portion of the people, shall have tested it more strictly.

I may state, however, that L.500,000 a-year was the sum which I mentioned in 1840, after some inquiry into the expenditure on the poor in different parts of Europe, to be, as I thought, a reasonable amount of usual annual expenditure on the poor of Scotland; being somewhat less than the sum raised, almost entirely by taxation, and expended on the poor of Paris, *i.e.*, on the poor of a population hardly more than *one-third* of that of Scotland.

And what seems to me the most important fact as to the operation of the New Poor Law in Scotland, is this, that although the number applying for legal relief, of course increased greatly after it came into operation, that number *came to its maximum as early as* 1849, when 106,400 registered poor were relieved in the year, and has since declined to 99,600 in 1853, the latest year of which I have the Report beside me, notwithstanding some increase of population; so that the apprehensions of Dr Chalmers and others, as to rapid increase of pauperism, after an increased facility of obtaining relief was granted,—so far as can be judged from the operation of an Act which has now been law since August 1845, just ten years,—would seem to have been quite unnecessary. In fact, any one who reads the communications made to the Board of Supervision from different parts of Scotland, by the agents employed under their direction, must be aware that there is no deficiency of zeal or industry in *repressing* the claims of the poor; I should apprehend much more danger of the opposite kind, of the intention of the law for the benefit of the poor being thwarted by the anxiety of those agents to ingratiate themselves with their superiors, by practising economy.

I believe, we may safely state farther, that since the Act of Mr F. M'Kenzie, as to the sale of intoxicating liquors on Sundays, came into operation, there is statistical proof, in most towns of Scotland, of diminution rather than increase, of the indications of dissipation, and particularly of drunkenness; and although I have been unable to attend, as I could have wished, to the social condition of the poor in Edinburgh, during these ten years, yet I have seen quite enough to confirm me in the belief, that the allowances now granted,—under the precaution of poor-house accommodation for those who may abuse them,—to the out-door poor, particularly to widows and orphans, and which are considerably raised from their usual former amount, have had a beneficial, rather than injurious moral tendency, on those families.

The Poor Law of Scotland, however, still labours, as I believe, under a capital defect, inasmuch as it grants no right to relief to the *able-bodied* poor, such as is granted both in England and Ireland, and such as I maintain may be granted with perfect safety, when the general rule is that of *in-door* relief only to such persons. I have little doubt that, during the next period of general destitution, arising from fluctuations in the demand for labour, it will be seen and acknowledged, that the aversion to this regulation, hitherto preventing its adoption in Scotland, has been founded on misconception and prejudice; and that the obvious injury to the health, and to the morals and habits of the poor, resulting from causes quite beyond their control, which occasionally reduce them to the condition of unemployed able-bodied, can be *statistically proved* to be much greater national evils than the supposed injury to their moral character from their enjoying a right to relief at those times. In the meantime, I beg it may be observed, that in stating the condition of the poor in

Scotland as distinctly improved, and improving of late years, and in alluding to the still stronger evidence of improvement in Ireland, I am far from asserting that we are to look on the amended Poor Laws, dated August 1845 in Scotland, and June 1847 in Ireland, as the sole or chief causes of these changes. I am quite aware that, in both countries, we must regard various dispensations of Providence—particularly such as have facilitated and encouraged *Emigration*, to an extent greater than I believe any one had anticipated, as the main cause of the change; —and in Ireland, where the evil had been the greatest, it may well be doubted whether the absolute destruction of a part of the population by the famine of 1848, has not been a sacrifice truly effectual as part of the cause of the improved condition of those who remain. All that I have ever maintained on this subject is, that a well regulated and carefully administered Poor Law, extending to all kinds and forms of human misery, attended with destitution, would be found *no impediment* to the beneficial operation of such measures, or events, as might permanently improve the condition of the people; that by it existing distress might be habitually relieved, *and the suffering proceeding from the great national disease, be assuaged, without prejudice to the beneficial operation of such human laws, or of such dispensations of Providence, as might tend to prevent its increase in future.* Restricting the inference in this way, I think it is fully justified by the following extracts from Reports of the Irish Poor Law Commissioners, published since 1840.

The First Report of the Irish Commissioners, published in 1848, stated the number daily relieved at the charge of the poor rates, introduced into Ireland only the year previously, at 800,000, and, including the assistance given by the British Association, under the direction of my excellent friend Count Strzelecki, at 1,000,000, or $\frac{1}{8}$th of the population; and adds, "we cannot doubt, that of this number a very large proportion are by this means, and *by this means alone*, *daily* preserved from death through want of food." Here was experiment on a large scale as to the usual effect of such relief on character. Observe the result:—"One circumstance," they added, "attending these operations, as reported to us, is hopeful and satisfactory *beyond all doubt or question;* and that is, *the unequivocal manner* in which the peasantry are showing, that they are *not disposed* to rely on the precarious help either of charitable funds *or of poor-rates*, for their future subsistence."—(*First Annual Report of Irish Commissioners*, p. 20.

I wish now to draw attention to the confirmation of the last statement, contained in the last, *i.e.*, Eighth Report. We have highly gratifying accounts from various quarters, of the amount of the funds remitted to Ireland, from America and Australia, by the relatives of distressed persons in Ireland, to assist their emigration, but I am not aware of any statistical evidence as to the amount of those sums. Their amount, however, is known to be great, and it is farther distinct evidence to the principle for which I contend, that the whole amount of the assistance, legal as well as voluntary, and, of course, improved security against destitution, granted to the poor in Ireland since 1847, has been at least *no impediment* to a marked improvement in their independent character, and moral as well as physical condition, such as is described in the following extracts:—

The *Eighth Annual Report* of the Irish Poor-Law Commissioners, published this summer, summarises as follows the statements made to them on the present condition of the poor in Ireland:—

"It is thus attested that, *universally throughout Ireland*, a more continuous state of employment of agricultural labour prevails, and that wages of 1*s. per day* are given, where formerly the rate was 4*d.*, 6*d.*, or 8*d.*; while in most parts of the country a man's wages reach 1s. 6d., 2s., or 2s. 6d. per day at certain seasons of the year. We believe that to these facts another important evidence of an improved condition may be added. We allude to the greatly increased demand for the *labour of females and young persons* of both sexes, which materially assists in rendering the income of an average family more proportioned to their physical wants than it was formerly, notwithstanding the present high price of provisions. In the period of six years, from 1849 to 1854, both years inclusive, we have ascertained that *considerably more than* 200,000 young persons of both sexes have *left the workhouses* of Ireland, and have *not returned* to those asylums. Visible signs of an improved condition of life are found in the appearance of the peasantry in all parts of the country, more especially in their clothing. In the character of the dwelling-houses such improvement must of course be more gradual. As regards food, meal of different kinds is in general use, either in the shape of bread or stirabout; and it is to be feared that too little variety as yet prevails, or is perhaps attainable under the present prices. In this respect, the workhouse dietaries are *greatly in advance of the ordinary cabin diet*, care being taken to obtain as much variety as can be obtained, with the very few combinations which milk, meal, and fresh vegetables afford, for beyond these simple articles of food, the pauper dietary in most parts of Ireland, excepting of course the hospital diet, cannot be carried without injustice to some of those who pay poor-rates, or at least maintain themselves without dependence on that fund."—(*Eighth Report of Irish Commissioners.*)

The following more recent extracts from newspapers are offered in confirmation of these statements of the commissioners:—

"There is a gratifying fact, too, which deserves to be generally known, that the pauperism of this country is on the decrease. Wages are high; the lowest employment, that of stonebreaking, being more remunerative now than that of a first agricultural labourer some two or three years ago."—*Clare Journal*, August 9, 1855.

"*The Irish workhouses are completely emptied of paupers* capable of performing *any kind* of work in the fields. In some instances, gentlemen farmers have watched the labourers going from Irish ports to England, and have hired them on the quays for quite as high wages as they could expect across the Channel."—(*Edinburgh Witness*, September 1855.)

"Dublin, August 1855.

"In opposition to the allegations (in *Freeman's Journal*), that the average rate of wages does not now exceed 1s. a-day, it may be stated, that in an extensive district of the south, where there is no remarkable scarcity of hands, mowers are receiving 6s., and reapers 3s. 6d. per diem each. This is, no doubt, the extreme rate of wages, but in other localities the standard is more than double what it was in any former year, and the farmer must be particularly fortunate who is enabled to get a fair day's work at the moderate remuneration of a shilling to the working man.

" *Decrease of Pauperism.*—There are now, it appears, only 452 *paupers* receiving relief in the *Union of Athlone.* Some few years since there were *upwards of* 6000, and the rates on some electoral divisions amounted to 8s. and 9s. in the pound. The highest rate on any electoral division of the Union, for the next twelve months, will be 2s. 9d., and some are as low as 4d."

" Dublin, Sept. 10, 1855.

" In all quarters complaints continue of the *scarcity of hands,* and of the enormous wages which the farmers are obliged to pay for manual labour. Half-a-crown a day, with board, seems to be the *minimum* standard, and but few are fortunate enough to secure, at this rate, a supply sufficient for the demand ; in many instances, employers are but too happy to raise the premium to a much higher figure."—(*Times Correspondent.*)

ARTICLE II.—*On the Composition of Bread.* By DOUGLAS MACLAGAN, M.D., F.R.S.E.

(Read before the Chemical Section, British Association, September 18, 1855.)

I WAS led to undertake the following investigation, by finding, when revising my lectures on Dietetics, some discrepancy between my own ideas and the statements contained in books, as to the amount of nutriment in bread, and consequently, as to the value to be assigned to it, in the construction of diet tables. It is remarkable, that on so important an aliment as bread, very few experimental observations have been made in this country at all, and the statements which have been published are contradictory. Thus, in so modern a work as Dr Pereira's *Treatise on Food and Diet* (1843), there is no statement as to the amount of real nutriment in bread. In a valuable report to the Scotch Poor-Law Board, made by Drs Alison and Christison in 1847, the amount of moisture in bread is estimated at 38 per cent. ; whilst in the same year, Professor Johnston,[1] in the second edition of his *Agricultural Chemistry,* states it, on the authority partly of his own experiments, and partly of those of Dumas, to be 44 per cent. in fine bread, and in the ration bread of the British and French armies, to be 51. In the more recent popular book of Payen, *Des Substances Alimentaires,* the per centage of moisture in Parisian white bread, is stated to be 36, and in the present ration bread of the French army, to be 35. This last, which has been served to the army since the accession of the present emperor, is equivalent to the second quality of bread used by the civil population, and has replaced the old coarse ration bread which contained 41 per cent. of moisture. M. Payen states, that the water in the 4 lb. loaf in London varies from 40 to 48 per cent. These discrepancies have obviously arisen from some chemists having analysed the crumb merely, whilst others have taken into account both crumb and crust. The latter proceeding was followed by Payen, and also in the following trials. Professor Johnston allows 5 per cent. for the greater dryness of crusts and loss by fermentation, but this is certainly too small a proportion. In all my experiments, I operated as follows:—In the case of small loaves or rolls, the whole was weighed, cut in slices, and then dried at 212°, so far as to enable it to be reduced to powder, and again weighed. A uniform mixture of partially dried crust and crumb being thus obtained, a portion of this was weighed and thoroughly dried, and from these data the whole moisture in the fresh bread was calculated. In the case of large loaves, a thick slice was cut from the centre of the loaf and treated in the same manner. The portion used to determine the moisture, served also for the estimation of the ash, whilst from another quantity of the pulverised bread thoroughly dried, the amount of nitrogen was determined by Peligot's method, and the equivalent in azotised constituents obtained as usual, by multiplying the azote by 6·5.[1]

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[1] I have learned with much regret, that this well known chemist and popular author, died at Durham on the very day on which this paper was presented to the British Association.

The following table exhibits the per centage composition of different kinds of bread as thus ascertained. The bakers' breads were all purchased in different shops. The first and fourth of the home-baked fine breads are made of Scotch flour, the second and third of English flour. The breads of second quality are made of wheaten flour, with the exception of the prison roll, which was a light brown bread, and the coarse unfermented bread which is made of wheat meal, containing the whole bran of the grain. The rye loaf, known in Germany as "Pumpernikel," came from Hamburg. I took the opportunity of examining it, having met with it in the house of a German patient of mine, during the time I was making the other analyses. It was very hard and unpalateable.

Per Centage Composition of Bread.

	Azotised Constituents.	Non-Azotised Constituents.	Ash.	Water.
BAKERS' BREAD—FIRST QUALITY.				
Common loaf, - - - -	6·72	54·55	1·77	36·96
Pan loaf, - - - - -	9·16	53·12	1·44	36·28
Flat roll, - - - - -	8·06	57·66	1·07	33·21
French roll, - - - -	6·24	55·60	1·61	36·55
Mean,	7·55	55·23	1·47	35·75

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[1] I have to acknowledge the kindness of Professor Anderson in relieving me from the trouble of making the nitrogen determinations, by having them executed for me in his laboratory. I can offer no better guarantee for their accuracy, than by stating that they were made by Dr Rowney and Mr Gellatly.

	Azotised Constituents.	Non-Azotised Constituents.	Ash.	Water.
BAKERS' BREAD—SECOND QUALITY.				
Small loaf (5½ oz.), City Charity Workhouse,	7·99	53·35	1·78	36·88
Brown roll, Edinburgh Prison, - -	8·38	54·98	2·54	34·10
Ration bread, 92d Regt., Edinburgh Castle,	7·60	57·38	1·26	33·76
Mean,	7·99	55·24	1·86	34·91
Mean of both qualities,	7·77	55·23	1·66	35·33
HOME-BAKED BREAD—FIRST QUALITY.				
From D—— P——, Mid-Lothian flour, -	7·60	55·26	0·86	36·28
" Mr L., No. I., English flour, -	7·64	57·87	1·47	33·02
" Mr L., No. II., English flour, -	6·63	57·42	1·55	34·40
" Mrs T., Mid-Lothian flour, - -	7·28	59·68	1·02	32·02
Mean,	7·29	57·56	1·22	33·93
HOME-BAKED BREAD—SECOND QUALITY.				
Wheaten loaf, Dr H., East Lothian flour, -	8·71	47·75	1·81	41·73
BAKERS' UNFERMENTED BREAD.				
First quality, - - - -	7·08	52·33	1·12	39·47
Coarse, - - - - -	7·41	48·72	2·35	41·52
RYE LOAF, Hamburg, - - -	6·95	54·97	1·56	36·52
BISCUIT.				
Biscuit, Leith, - - - -	6·89	83·28	1·24	8·59
Royal Navy Biscuit, H.M.S. Archer, 1854,	9·23	80·23	0·96	9·58
" " Deptford Victualling Yard, 1855, - - - -	9·55	82·46	0·96	7·03
Mean R. N. biscuit,	9·39	81·35	0·96	8·30

On these analyses I have to offer a few remarks. First, as regards moisture. The results which I have obtained, show that the amount of moisture in bread is less, and consequently its nutritive value greater, than is generally allowed. The averages in the above table, both for the first and second qualities, correspond exactly with those of Payen, and differ by a considerable per centage from those of other authorities. They show a difference of about 9 per cent. as regards the fine bread, and of 17 per cent. as regards ration bread, in favour of the consumer.

Professor Johnston, the only recent British writer who has furnished any details respecting the composition of bread, makes the following statement :—

"English wheaten flour contains, on an average, about 16 per cent. of water.[1] If, therefore, the bread baked from it, as it comes from the mill, contain 44 per cent., every hundred pounds consist of

Dry flour,	56	66½
Water in the flour (naturally),	10½	
Water added by the baker,		33½
		100

Or the flour in baking takes up half its weight of water. A hundred pounds of flour, therefore, as it comes from the mill, will give nearly 150 pounds of bread. Thus, the flour and the bread contain, respectively,

	Flour contains	Bread contains
Dry flour,	84	84
Natural water,	16	16
	100	
Water added,		50
Weight of bread,		150

A sack of flour, therefore, or 280 lbs., ought to give about 420 lbs. of well-baked bread ; something must be deducted from this for the loss by fermentation, and for the dryness of the crusts. Allowing 5 per cent. for these, a sack of flour should give 400 lbs. of bread of the best quality, or 100 quartern loaves."—(*Agric. Chemistry*, 2d Edit., p. 878.)

Adopting the same form of calculation, the results to which I am conducted, differ considerably from the above.

The average moisture in flour being 13·4, and that in fine bread 35·75, its composition will stand thus :—

Dry flour,	64·25	
Moisture in flour,	9·94	
		74·19
Water added by baker,		25·81
		100·00

Or the flour in baking retains about ⅓d of water. A hundred pounds of fine flour, therefore, will yield 134·7 of bread, or a sack of flour (280 lbs.), will give 372·4 lbs. of bread; or 94·2 quartern loaves.

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[1] The amount of natural moisture in the flour appears to be overstated here. It is not correct to assume British flour alone as the bases of calculation, for, as is well known, a great deal of what is employed by bakers is foreign. At the present time, there is a large quantity of German flour in use in Edinburgh.

13·4 appears to be nearer the average moisture in flour from the following published statements :—

Vauquelin,	10·2
Horsford,	13·4
Payen,	14·0
Dumas,	13·3
Johnston,	16·1
Mean,	13·4

In home-baked bread, where the amount of water held is 33·93, the composition will be,

Dry flour, ...	66·07	
Moisture in flour, ...	10·22	
	——	76·29
Water added in baking,		23·71
		100·00

100 lbs. of flour, therefore, when baked at home, gave 131 lbs. of bread, and the sack 366·8 lbs. of bread, or 91·7 quartern loaves.

With regard to the coarser bread from the bakers' shops, we are very deficient in published data. Johnston states, that the average moisture, in brown bread baked at home, is 44 per cent. I have been able to examine only one sample of home-baked coarser bread, and this was not brown, but wheaten bread. It was sent to me by a professional brother in the country, who uses only home-baked wheaten bread, made of East Lothian flour. I received it with the statement, that it was an unfavourable sample, having been, as its appearance indicated, not sufficiently fired, and in this, which contained more moisture than any other bread which I examined, the amount was only 41·73 per cent. The coarser bakers' breads, contain much less moisture, the average being 34·91; the composition of bakers' coarse bread, therefore, is,

Dry flour, ...	65·09	
Moisture in flour, ...	10·07	
	——	75·16
Water added by baker,		24·84
		100·00

100 lbs., therefore, of coarser flour, will yield 133 of bread, and the sack 371·4 lbs., or 92·8 quartern loaves.

The average yield, therefore, of a sack of flour, fine and coarse overhead, in the hands of the baker, is 93½ quartern loaves, according to the result of my analyses.

These numbers must, I apprehend, be very near the truth, for on inquiring at several of our bakers here, I find that a majority of them hold 92 loaves to be the average produce of a sack of flour. Some of them have occasionally, though rarely, obtained 94 or 94½; so that, in truth, the average yield in the hands of the baker, may be said to correspond almost exactly with that calculated from the results of the above analyses. It does not appear, therefore, from what is stated above, that the practice of baking at home, recommends itself highly on the score of sheer economy, except in the case of families living at a distance from towns. Of course, the more loaves a baker can turn out from his sack of flour, the greater are his profits; or, as it is commonly expressed, the purchaser remunerates the baker by paying for the weight of water which he can make his bread to hold. This is true in the main, but the amount that is gained in this way—the quantity of water which he gets in, beyond what the housekeeper does—equals only the weight and value of two quartern loaves per sack. The other expenses being equal, the family baking at home gains to this extent, against which there must be set the trouble and risks of accident in the process. In fact, I have gathered from some of those who bake at home, that they use the home-baked bread for themselves and families, but give bakers' bread to their domestics, so that it reduces itself very much to a matter of taste and luxury.

In the case of unfermented bread, the composition deducible for it, from my analyses, is,

Dry flour, ...	60·53	
Moisture in the flour, ...	9·36	
		69·89
Water added by baker,		30·11
		100·00

the flour in baking retaining $\frac{3}{7}$ths of its weight in water. 100 lbs. of flour, therefore, will give 143 of unfermented bread, or the sack of flour, if made into the usual form of loaf, would give 400·4 lbs., or 100½ quartern loaves.

The statement of Professor Gregory (*Org. Chem.*, 429), that "the quantity of flour which will yield 1500 loaves by fermentation, furnishes 1600 by the new method," is thus quite correct in point of fact, but certainly not upon the grounds assigned by him, that it is from "the sugar and fibrine being saved." The increased product is economical for the baker, but not for the consumer, being due only to the greater amount of water in the bread. The probable loss of nutriment by fermentation, appears, on other considerations, quite insufficient to account for it. Dumas estimates the loss of sugar by fermentation as not more than 1 per cent. of the flour. The unfermented bread, therefore, is not defensible on the score of economy, but recommends itself by its agreeable taste, and suitableness for certain forms of dyspepsia, which it would be out of place to discuss here.

I have not found in books any statement of the composition of ships' biscuit, three analyses of which are given. One of these, however, must be excluded; for although got on board one of the ships of the Baltic fleet when here last year, the friend who brought it to me did not ascertain it to form part of the ship's own stores. It differed somewhat in appearance, and very much in composition, from the other two samples, which are authentic. That from H.M.S. Archer contained more water than the two biscuits from Deptford, having doubtless gained moisture during the time it was with the ship in the Baltic campaign of 1854.

On the subject of the proportion of azotised matters in bread, there is little to remark. The average per centage of these in fine bakers' bread, is 7·55; in home-baked bread 7·29; the mean of all the fine bread being 7·42; in the coarse bread the mean is 7·99. These results correspond with those obtained in France by Payen, who gives for fine bread 1·08 azote = 7·02 of azotised matters; and for ration bread, 1·2 of azote = 7·80. The Report to the Poor-Law Board, by Drs Alison and Christison, estimates the proportion of nitrogenous matters in bread at 10·5. This is certainly too high, and constitutes a difference of some importance in relation to the allowances of food to paupers, whose diet tables are calculated with scrupulous nicety, and proceed upon the supposition, that bread contains 2½ per cent. more of blood-forming nutriment than it really does.

The above analyses confirm the opinion now generally entertained, and sanctioned by abundant experience in dieting troops and charitable institutions, that the finest flours contain less azotised matters than the coarser kinds, and that to indulge our taste for white bread, we thus submit to a sacrifice of valuable nutriment. Few recent authors have disputed this, except M. Poggiale, who, in a report to the French government on the ration bread of the army, comes to the conclusion, that it contains less azotised matter than the fine bread. (*Journ. de Pharm.*, Sept. 1853). As his conclusions, however, are built, partly at least, on direct determinations of the gluten, etc., as such—a most uncertain method of operating—they do not appear to me to invalidate the evidence of other observers as well as myself.

It may be remarked in reference to the physiological question of nutrition, that the bread of all kinds contains azotised and non-azotised matters in the ratio of one of the former to 7·3 of the latter.

Before quitting the subject of the azotised constituents, it may be observed, that the above investigations give no confirmation to the generally received opinion, that the power of any sample of flour to "hold" water in baking, is in proportion to the amount of azotised matters which it contains. Professor Johnston (*op. cit.*) has shown sufficient reason for disbelieving this, and the above analyses lead to a similar conclusion. The following tabular statement exhibits the ratio of azotised matters to the water, and to the non-azotised constituents, and the absolute amount of water in each kind of bread. The first column shows the per centage of water in each kind of bread, and the second the ratio of azotised matters to the water. Here, if the amount of water depended upon the amount of gluten, etc., we ought to have something like a uniform relation between the two; but this is not the case, the ratio in different samples varying between 1 to 3·1 and 1 to 5·8, or nearly double. The third column, which displays the ratio of azotised to non-azotised matters, is equally hostile to the idea, that a larger proportion of gluten gives a greater power to hold water, or makes what bakers call a strong flour. For instance, Nos. 4, 5, 8, and 9 all contain within less than

1 per cent. of the same quantity of water, and yet the ratio of azotised to non-azotised matter varies between 1 to 5·8 and 1 to 8·1.

Relation of Proportion of Azotised Matters to the Water held by Bread.

	Water per cent.	Ratio of 1 of Azotised Matter to Water.	Ratio of 1 of Azotised to Non-Azotised Matter.
1. Wheaten loaf, home-baked, - -	41·73	4·8	5·5
2. Coarse unfermented bread, - -	41·52	5·6	6·4
3. Fine unfermented bread, - -	39·47	5·5	7·4
4. Common loaf, - - - -	36·96	5·8	8·1
5. Charity Workhouse bread, - -	36·88	4·6	6·6
6. French roll, - - - -	36·55	5·8	8·9
7. Rye loaf, - - - -	36·52	5·2	8·0
8. Pan loaf, - - - -	36·28	3·9	5·8
9. Home-baked loaf, D—— P——, -	36·28	4·9	7·2
10. Home-baked loaf, Mr L., No. II., -	34·40	5·1	8·6
11. Edinburgh Prison roll, - - -	34·10	4·0	6·4
12. Ration bread, - - - -	33·76	4·4	7·5
13. Flat roll, - - - -	33·21	3·1	7·1
14. Home-baked loaf, Mr L., No. I., -	33·02	4·3	7·4
15. Home-baked loaf, Mrs T., - -	32·02	4·5	8·2

This table shows that something more than the mere amount of azotised matter must be looked to for explaining the power of different kinds of flour to retain moisture in baking. The universal belief in this, entertained by practical bakers, seems to show that the azotised matters have something to do with it. Perhaps it may be rather the form which the nitrogenous matter has, than its mere amount. The German flour at present in use in Edinburgh, contains, as I have determined by microscopic examination, a considerable proportion of leguminous flour, probably from a white variety of pea common at Dantzic. It will thus be richer in vegetable caseine than pure wheat flour; and it may be to this form of azotised matter that it owes its power of retaining water which it has been found to possess.

In the above determinations of moisture, the breads were, as a matter of convenience, analysed when they came into my hands, although thus at various periods of time after being taken from the oven. This, although it may make slight differences in the amount of water, does not introduce any error which invalidates the general result, for the loss of moisture by evaporation from bread is a very slow process. The following table exhibits the proportion of water in the bread of various ages :—

Water in Bread in relation to age.

	Age.	Water.	Total Solids.
1. Common loaf, - - -	1½ hours.	36·96	63·04
2. Flat roll, - - - -	6 hours.	33·21	66·79
3. French roll, - - - -	9½ hours.	36·55	63·45
4. Home-baked loaf, Mr L., No. II., -	18 hours.	34·40	65·60
The same loaf, - - -	6 days.	30·17	69·83
5. Home-baked loaf, D. P., - -	30 hours.	36·28	63·72
6. Brown unfermented bread, soft and plastic, - - - -	32 hours.	41·52	58·48
The same loaf, - - -	11 days.	38·29	61·71
7. Charity Workhouse bread, - -	33 hours.	36·88	63·12
8. Fine unfermented loaf, - -	38 hours.	39·47	60·53
The same loaf, - - -	104 hours.	37·84	62·16
The same loaf, - - -	11 days.	35·08	64·92
9. Prison roll, - - - -	38 hours.	34·10	65·90
10. Pan loaf, - - - -	48 hours.	36·28	63·72
11. Home-baked loaf, Mrs T., - -	48 hours.	32·02	67·98
12. Ration bread, - - -	48 hours.	33·76	66·24
13. Home-baked wheaten loaf, Dr H., -	72 hours.	41·73	58·27
14. Home-baked loaf, Mr L., No. I., -	9 days.	30·02	66·98
15. German rye loaf, - - -	3 weeks.	36·52	63·48

In the instance where the same fine loaf was examined by me twice, it will be seen, that even after the lapse of 6 days the loss did not amount to 4½ per cent. Boussingault also found the loss in weight to be about 4 per cent. in 6 days. In the case of unfermented bread, the somewhat denser texture appears to retain moisture more tenaciously, for the greatest loss in 11 days was only 4½ per cent. It is certain that a fraudulent dealer, using light weights, ought not readily to escape, even though his loaves should not be weighed within the statutory period of 24 hours after coming from the oven. Even after 6 days, his 4 ℔. loaves ought not to have a greater deficiency in weight than 2½ ounces. It was long thought that the change of a loaf into the condition of stale was simply a process of desiccation, but Boussingault has shown, that the loss of moisture during 48 hours after baking does not exceed 1 per cent., and that the stale condition has nothing to do with drying, but is owing to a molecular change taking place during the cooling; for a loaf, which has become stale, may be restored to the condition of new bread by reheating it in the oven, even though this causes a considerable dissipation of moisture, and this may be done with the same loaf several times (*Journ. de Phar.*, Feb. 1853). The change is probably analogous to the alteration in physical properties which gutta percha undergoes by heat.

The last point to which I wish to direct attention in relation to ordinary bread, is the amount of ash. In none of the specimens which I have examined, has this been in such quantity as to give the least countenance to any idea of wilful adulteration of the bread or flour with inorganic matter. The amount of ash naturally contained in wheat flour, appears to vary very much, or at least is very variously stated by authors. Johnston gives six determinations of fine flour, the mean of which is 1·08 of ash per cent. (*Agric. Chem.*, p. 869), whilst Horsford, in two samples of Vienna flour, got a mean of 0·68. My own determinations of four samples of flour, three of first, and one of second quality, gave 0·64 as the average per centage of ash. In the inferior qualities of flour it is of course greater, the larger portion of mineral matter residing in the husk. Horsford's third sample of Vienna flour gave 1·10 of ash, and one specimen of coarse wheat meal—that from which the coarse unfermented bread is made—yielded not less than 3·04. Until further determinations have been made of the ash of fine flour, to reconcile these differences, I assume the mean between Horsford's results and my own, or 0·66, as the average in wheat flour of first and second quality.

On this basis, therefore, taking flour as containing 86·6, and fine and second bread as containing 64·67 of dry matter, the proportion of ash in bread should be,—

Natural ash in the flour, ...	0·49
Salt added by baker, ...	1·17
Mean in bread as found by experiment,	1·66

After this result had been obtained, I inquired at several bakers, what was the average amount of salt used in making bread. It is not possible to obtain exact information on this point, because one baker differs much from another in his practice, and from himself at different seasons, more salt being used with new than with old flour.[1] The result of my inquiries, however, was, that the salt was usually added in the proportion of 4 or 4¼ ℔s. to a sack of flour. Taking the yield of bread as 92 quartern loaves per sack, the result would be, that the quantity practically added would be 1·15 per cent. of the weight of bread, or almost exactly what the analyses indicate. One of our leading bakers estimated the salt which he used at 6 ℔s. per sack of flour, which would give 1·27 as the mean of salt in the bread. Even with this the result is so near as to be within the limits of experimental error.

It has generally been supposed, that the salt added by the baker is useful, not merely in giving sapidity to the bread, but in enabling it to hold more water. The following table shows the relation of the amount of inorganic matter in the bread to the amount of water:—

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[1] The difficulty of ascertaining this exactly, is enhanced by its being the universal practice, not to mix the dry salt with the flour, but to dissolve a certain quantity in a given bulk of water, and to make the dough with this solution, so that the quantity of salt added depends upon the quantity of water needed to make a workable dough.

	Water per cent.	Ratio of total solids to 1 part of ash.
1. Wheaten loaf, Dr. H., - - -	41·73	32·2
2. Coarse unfermented bread, - - -	41·52	24.9
3. Fine unfermented, - - - -	39·47	54·0
4. Common loaf, - - - -	36·96	35·6
5. Charity Workhouse bread, - - -	36·88	35·4
6. French roll, - - - -	36·55	39·4
7. Rye loaf, - - - - -	36·52	40·7
8. Pan loaf, - - - - -	36·28	43·1
9. Home-baked loaf, D. P., - - -	36·28	74·0
10. Home-baked loaf, Mr L., No. II., - -	34·40	45·3
11. Edinburgh Prison roll, - - -	34·10	25·5
12. Ration bread, - - - -	33·76	52·5
13. Flat roll, - - - - -	33·21	62·4
14. Home-baked loaf, Mr L., No. I., - -	33·02	43·2
15. Home-baked loaf, Mrs T., - - -	32·02	66·6

From this table it does not appear, that the greater the proportion of saline matter the greater is the per centage of water. Thus Nos. 8 and 9 have the same amount of water, and yet the ratio of saline matter to total solids is in the one case 1 to 43, in the other, 1 to 74. Again, Nos. 8, 12, and 15 (all of the same age—48 hours), exhibit a difference in water of not more than 4¼ per cent. between the highest and lowest, yet their ratios of ash to solids is 1 to 43, 1 to 52, and 1 to 66. The mere amount of salt, therefore, will not, any more than the mere amount of azotised matter, account for the power of holding water which the dough possesses. Alum, as is well known, has a reputation for acting much more powerfully in this respect than common salt. I cannot say whether, in these instances, the variations in the moisture may or may not have been due to the presence of a small quantity of alum. I examined the ashes of some of my first samples of bread for alumina; but on finding that some of the potassa which I had used as a reagent was impure, I gave up this point, which formed no part of my original object in this inquiry. If it be true that a small quantity of alum is added, as is commonly alleged, it does not appear to have much effect in causing the bread to hold more water; for the average amount of moisture found by me corresponds exactly with that got by Payen in the bread of Paris, where the laws regulating the manufacture of bread are said to be so perfect, as to render such practices almost impossible. None of the above breads contained more than their legitimate proportion of ash. The two highest, the Edinburgh Prison bread, and the coarse unfermented bread, were made of rough meal containing the whole husky matter of the wheat; and the normal ash which these ought to contain, amounts to almost exactly the quantity found by me. In these days, when the detection of adulterations is so much in vogue, it is satisfactory to find that the dreadful revelations as to bread with "large crystals of alum" in it, which have astounded Parliament,[1] frightened the lieges, and amused chemists, are at all events not applicable to the bread of Edinburgh.

28, HERIOT ROW, EDINBURGH,
13th Sept. 1855.

ARTICLE III.—*Quarterly Report of Cases occurring at the Edinburgh Eye-Infirmary.* By ROBERT HAMILTON, M.D., F.R.C.S.E., and BENJAMIN BELL, F.R.C.S.E.

July 1*st to September* 30*th* 1855.

Tumours of Eyelids, - - - -	2
Wounds, Inflammation, Abscess of do., - -	2
Hordeolum, - - - - -	3
Ophthalmia Tarsi, etc., - - - -	12
Inversion of Eyelids, - - - -	2
Trichiasis, - - - - -	1
Epiphora, - - - - -	1
Inflammation of Lacrymal Sac, Fistula, etc., - -	5
Strabismus, - - - - -	2
Protrusion of Eyeball, - - - -	1
Wounds of Conjunctiva, foreign bodies under Lids, -	4
Inflammation of Conjunctiva, acute, - - -	30
Do. Do. chronic, - - -	26
Do. Do. Catarrhal, - -	1
Do. Do. New-born Infants, - -	2
Do. Do. Muco-purulent, - -	2
Do. Do. Phlyctenular and Pustular, -	10
Do. Do. Strumous, - -	2
Do. Do. Catarrho-rheumatic, -	2
Granular Conjunctiva of Palpebrae, - - -	5
Wounds of Cornea, "Fires," etc., - - -	4
Inflammatory affections of Cornea, - - -	13
Abscess of Cornea, - - - -	4
Ulcers, Vascular speck of Cornea, - - -	6
Opacities of Cornea, - - - -	8
Staphyloma, - - - - -	1
Inflammation of Iris, rheumatic, - - -	3
Do. Aqueous Membrane, - -	1

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[1] See first report of committee on adulteration of food, etc.

Cataract, Idiopathic, - - -	5
Do. Traumatic, - - - -	1
Myopia, - - - -	3
Asthenopia, - - -	1
Amaurosis, Glaucoma, Retinitis, etc., - - -	9
Cases not classified, - - - -	1
	175

Granular Conjunctiva of Palpebræ.—This morbid affection deserves to be carefully studied, both from the serious changes which it produces on the cornea, and from its admitting, in most cases, of being cured or greatly relieved by appropriate remedies. Its presence is often overlooked altogether, with the lamentable result of a gradual impairment and ultimate loss of sight to the unfortunate sufferer. While treatment is directed perseveringly to the nebulous and vascular cornea, which is only secondarily affected, the real and primary seat of disease—the rough and congested lining of the upper eyelid, receives no attention. It is, therefore, a safe precaution, in most cases of prolonged disease of the cornea, to evert the lid, and ascertain if there be anything on its inner surface that can explain the continued irritation. Sometimes we discover a foreign body, either bare or enveloped in secretion, which accounts for the obstinacy of the symptoms,—and sometimes, the peculiar roughened condition of the membrane, to which we now wish to direct attention.

A practised eye can usually pronounce upon the nature of the case before the lid has been everted. The cornea is seen to have lost its lustre, and its surface is occupied by a number of distinct and tortuous vessels crossing its margin, and continuous with those of the conjunctiva occuli. In general, the vessels are most numerous on the upper half of the cornea, and occasionally they are confined to it. The skin of the superior palpebra has a rather loose and redundant appearance, and the margin of the lid no longer presents the characters of perfect health. On pulling down and everting the lid upon a probe in the usual way, the conjunctiva lining it is seen to be greatly changed. Instead of a smooth, transparent membrane, through which the rows of meibomian glands can be distinctly seen, it is congested, thickened, and irregular, from the presence of small rounded prominences not unlike the granulations of a healthy suppurating sore. Sometimes the granular projections are peculiarly firm, and separated from each other by considerable spaces; and these seem to be the cases in which the cornea is chiefly injured.

What treatment is found to be most satisfactory in this form of disease? We have no hesitation in recommending very strongly, as a local application to the granular surface, the solutio diacetatis plumbi. Various other remedies have been successively extolled and then abandoned, as unsatisfactory; but we believe that the principal cause of disappointment has been a tendency to make the treatment too heroic and mechanical,—the reparatory powers of nature being practically disregarded. This remark seems applicable to the plan of excision, to scarification, and to the free local use of sulphate of copper and other corrosive substances. And probably we may soon see consigned to the same category, the procedure recommended by a recent author, viz., of dusting the acetate of lead in fine powder over the everted lid. This gentleman tells us that it produces considerable pain at the time of its application, but afterwards gives decided relief, *apparently by mechanically filling up the interstices of the granulations, and so producing a smoother surface for the eyeball to move upon.* He adds,—"As the salt slowly dissolves, it probably exerts also an astringent effect upon the vessels supplying the enlarged follicles and papillæ, and so diminishes the size of these excrescences." The latter part of this therapeutical explanation is reasonable enough, and we do not doubt that the powdered acetate, applied in a fashion so unusual is sometimes beneficial; but the recommendation just quoted is neither very warm nor encouraging, and therefore, most probably, like other powerful irritants, the new remedy will be speedily superseded.

The diacetate in solution may be employed with great confidence. It should be used, as a general rule, not oftener than once in two days, and the best mode of applying it to the granular surface, is by means of a camel-hair brush of moderate size. On exposure to the air, carbonate of lead is gradually deposited from the solution; and if this has occurred, care must be taken to confine the brush to the supernatant fluid. The application causes little uneasiness, and the improvement is often rapid and remarkable. In illustration of this, we may mention the case of a respectable middle-aged man from Newcastle, who was an in-door patient a few months ago. Three years previously he had suffered from purulent ophthalmia, which soon became chronic, and was treated by various practitioners, both in public and private, during the intervening period. He needed a companion to guide him, the vision of his right eye being limited to a mere perception of light, while that of the left was slightly greater. Both corneæ were nebulous, and overspread with the characteristic red vessels; but the opacity in the right was more dense and central than in the left. The upper eyelids were granular. In three weeks, under the local treatment we have recommended, with due attention to his general health, he was able to read a type of ordinary size, and the improvement was still going on steadily, when circumstances of a domestic nature compelled him to return home.

Myopia.—The following case, although differing, in one respect, from ordinary instances of near-sightedness, may be classed with propriety under that head, in the present state of our knowledge:—

Mr J. R., 30 years of age, a schoolmaster by profession, has experienced much inconvenience, during the last three years, from a defect of vision, particularly in his left eye, which did not exist previously. While teaching geography, with the aid of a large and distinctly-marked school map suspended in front of the children, he can see nothing clearly; but the most gentle pressure upward with his finger on the lower lid, enables him to distinguish every place in the most satisfactory manner. He cannot read small print readily at a greater distance from his eye than eight inches; but by gently pressing the lower lid in the way already described, he can do the same at the distance of two feet. Upon careful examination of the eye, no want of symmetry in the cornea, or any other abnormal appearance, can be discovered. A strong conviction that some peculiarity of form existed, had hitherto prevented him from trying the simple remedy of a concave lens; so that he had persevered, month after month, with the irksome expedient already mentioned. His satisfaction may be imagined, on finding that a pair of concave spectacles completely met his case.

The relief afforded to the myopia by gentle pressure on the globe, is a suggestive fact, when viewed in connection with those cases of strabismus in which a marked improvement of vision takes place *immediately* after the muscle is divided.[1]

Amaurosis.—The following case is rather unusual, and seems worthy of being recorded:—

J. S., 29 years of age, an intelligent, steady young man, of regular habits, by trade a tinsmith, gives this history of his case. In the year 1843, after more than ordinary fatigue, he became conscious of a dimness of sight in the right eye. This gradually increased, until he could see with it only a very little towards the outer side, and at last, nothing remained but a bare perception of light. In July 1850, the blind eye was affected with a severe and obstinate attack of rheumatic ophthalmia, and since that date it has caused him no trouble, but all vision is completely gone. At present, its condition is as follows: The cornea and sclerotica have a healthy appearance, and the consistence of the globe is natural. The iris retains its lustre; but the pupil is irregular, and adheres all round to the capsule of the lens, which is white, and perfectly opaque. There is some undue action of the external rectus muscle; but were it not for the total insensibility of the eye to light, the formation of an artificial pupil might be almost deemed practicable.

It is with the left eye, however, that we are chiefly interested at present. The history is briefly this:—

In the month of June 1853, more than three years after the right eye had passed into its present condition, he awoke one morning so nearly blind, that he could just distinguish light from darkness. No improvement took place for months, and then only partially during a few weeks, after which the returning light suddenly disappeared, to use his own expression, "in a shower of black flakes." Vision soon began again to return, and betwixt February and May 1854, was as perfect as ever, and he resumed his ordinary occupations. While walking in one of the streets of Dundee, in conversation with his medical attendant, darkness suddenly supervened in the same manner as formerly, unaccompanied by uneasiness in the head, or any other symptom of bodily ailment. In the following August, his sight began to return; and betwixt that date and May 1855, when he applied at the Eye Infirmary, the same alternation of blindness and restored vision had taken place four or five times. On this occasion, May 14th, his sight was nearly at its worst, having suddenly departed, five days before, in the usual way, without any conceivable cause or accompanying symptom. The eye presented all the characters of health, unless, perhaps, the pupil was slightly larger than usual; but the latter contracted and expanded readily under various degrees of light, and the iris had all the brilliancy of perfect freedom from disease. The cornea was transparent, and the sclerotic devoid of vascularity. No appearance could be detected within the eye to throw any suspicion on the retina, choroid or hyaloid membrane, and the globe maintained its normal consistence.

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[1] *Vide antea*, p. 137.

Although there were no very clear indications for treatment, a single grain of blue pill was prescribed night and morning.

On the 20th of August, he could read with perfect facility, and at any reasonable distance, the smallest print on our patient's card, and this improvement continued on the 10th of September. Next day, he came back as blind as ever,—a sudden accession of darkness having occurred in the evening, as he sat by the fire. Up to the present time (October 9) little improvement has taken place. He mentions that, when lying on his back, there is a sensation as if some dark matter gathered on the surface, while, in the erect posture, it seems to become, as it were, stirred up, more generally diffused and less dense, so that he can see the outlines of familiar objects indistinctly, as if he were looking through a hedge.

It may be expected that the ophthalmoscope would throw some light on the pathology of this and analogous cases. It was had recourse to, but, possibly from want of expertness in using it, we failed to obtain any information. When a double convex lens does not, as in this case, reveal any abnormal appearance behind the pupil, we doubt much if supposed revelations of the ophthalmoscope are worthy of confidence, not to mention the manifest danger, as acknowledged by Mr Dickson and others, of concentrating luminous rays upon inflamed or congested textures.

We would suggest, that the cause of amaurosis in the foregoing case is external to the eye itself, and probably, in some portion of the nervous or cerebral substance, associated with vision.

The following case is not without interest in connection with these remarks:—

A lady, 42 years of age, while stooping to adjust the hearth-rug, perceived a sudden shower of sparks before her left eye, and immediately lost all power of vision, except a mere perception of light towards the outer side. This continued for more than twelve years, until one morning, on awakening out of sleep, she was agreeably surprised to find her sight restored. She had experienced a curious sensation, the evening before, in the back part of her head; but when the writer of this called after breakfast, she was sitting up in bed reading a newspaper with facility. Shortly afterwards her stomach became irritable, she had bilious retching, lost all appetite for food, and died exhausted within a month from the time of regaining her vision. No post mortem examination took place.

ARTICLE IV.—*On the Speculum in Local Bleeding in Diseases of the Uterus.* By WM. CRAIG, Surgeon, Ayr.

IN a paper in the *Monthly Journal of Medicine* for May last, Dr J. Matthews Duncan very judiciously advocates the superiority of directly bleeding the uterus, over other forms of local bleeding, in diseases of that organ. He complains of the insufficiency of the tubes in ordinary use, and recommends the speculum as much superior in these operations.

He states, that "the leeching in ordinary use may be said to be applied blindly, that is, the operator has it not in his power to effect the leeching of any particular part, the instrument not admitting the use of the eyes to direct its open end. In order that the leeches may be accurately applied on the os uteri itself, it is necessary to expose it with a speculum whose end encircles and receives the cervix. Upon this part the leeches are applied, and, if necessary, retained by a dossil of lint. When they are filled and separate, they glide easily out of the tube, and are removed. By the use of the speculum for this purpose, two evils attendant upon the use of the ordinary leech-tube are avoided, for, with the latter, it is sometimes impossible to prevent the leeches attaching themselves low down on the vulva, where they cause pain and discomfort."

The speculum even has disadvantages, which might be obviated by other contrivances, or by a modification of its own form, for example, its length is unfavourable for manipulations connected with leeching the os uteri, as the finger cannot stretch through it.

I have been in the habit of using an instrument something of the form of the speculum and without the objections of the common tube, and in some respects, in my opinion, superior to the speculum. This instrument is composed of a cylindrical tube made of block tin, about three inches long and one inch and a quarter in diameter. It has a collar of solid metal, about three-tenths of an inch thick on the one end, and terminates in a blunt edge on the other. A piece of wood is made to fit exactly to pass through the cylinder, and project an inch beyond the end having the blunt edge, and the projecting portion of the wood is made round and smooth to facilitate and make the introduction easy. As a matter of course, it must be well lubricated with any unctuous substance which may be at hand. When the cylinder is introduced, the wood is withdrawn, and a box accurately filling the hollow of the cylinder, and capable of containing four or six leeches according to their size, is then introduced. The box is also made of block tin, and soldered to the end of a piece of thick wire, about six inches long, which serves as a handle to push up the leeches. The leeches, being in this manner closely applied, sit more readily, soon fill, and finish the operation in a very short time.

As it appears to me, this instrument has advantages over the speculum, which, in some circumstances, are of importance, 1*st,* With it the application can be made without any ocular inspection, a mere digital examination being sufficient to learn what is included in the internal presenting end of the cylinder. 2*d,* The manner of introducing the leeches by the box, causes their more quick and accurate adhesion. 3*d,* The shortness of the cylinder allows a ready examination to discover if the leeches are on the desired situation, and an opportunity to separate them if they adhere longer than they are required. 4*th,* In point of delicacy, this instrument is less objectionable than the speculum, as the leeching can be affected under the bedclothes and thus avoid exposure, a matter which, in this country at least, is of importance, as it will reconcile a class of patients to this mode of procedure all the more readily, that their feelings are, as much as possible, respected.

AYR, 25th September 1855.

ARTICLE V.—*Diseases of the Spinal Cord and its Membranes.* By EVANS REEVES, M.D.

(*Continued from Page* 313.)

Termination, Position, and Duration, of Acute Idiopathic Inflammation.

OF the fourteen cases observed and collected, the result was fatal in the whole of the number. In four of the cases the cord was generally inflamed; in four it was confined to the cervical region; in one to the upper part of the cervical and lower part of the dorsal: and in the remaining five to the dorsal region.

In the four cases where the cord was generally affected, death ensued in one, a female aged 18, on the seventh day during an access of suffocation while drinking; in another, a male aged 15, on the ninth day, during an access of suffocation. He had suffered from remissions and accesses of congestion for seventeen days. In a third case, a male aged 22 months, death ensued on the ninth day from coma; and in a fourth, a male aged 28, on the fifteenth day, from asphyxia. He had suffered from symptoms referable to the membranes of the base of the brain, with pain along the spine, for three weeks before the cord became decidedly affected.

In the four cases where the cervical portion of the cord was affected, death ensued in one, a male aged 43, on the seventh day, from coma; in another, a male aged 21, on the eighth day, from asphyxia; in a third, a female aged 22, on the twenty-seventh day, from asphyxia; and in a fourth, a female aged 79 (period not stated), from asphyxia.

In one case, where the lower part of the cervical and upper part of the dorsal regions were affected, the patient, a male aged 16, died on the eighth day, from prostration.

In the five cases where the lower half of the cord was affected, death ensued from disease of other organs. In one, a male aged 46, from abscess of the kidney; in a second, a male aged 27, from effusion into the pleura; in a third, a male aged 65, from bronchitis; in a fourth, a male aged 23, from sloughing of the sacrum; and in a fifth from yellow fever.

Case. XVII.—*Pleuritis, followed on exposure to Cold, by general Congestion and subsequent Inflammation of the Cord—Death.*—A servant-girl, æt. 18, strong and robust, was seized, on the 12th of February 1847, with acute pleurites. By active antiphlogistic treatment the symptoms were soon subdued, and she was able to get up in the course of the week. She then insisted on going home, a distance of three miles, in spite of all that could be urged against it. During the journey, although well wrapped up, she suffered severely from cold, and, when taken out, was quite benumbed, and nearly stupified. She was put into a warm bed, and warm drinks given her, but some hours elapsed before the natural heat of her skin returned. When it did, she complained of severe pain along the whole course of the spine, great oppression at the chest, pain in the head, legs, and arms.

When seen early the next morning, she complained of painful numbness in the upper and lower extremities, and was unable to lift them off the bed; deep-seated weight in the lower part of the chest, and obtuse pains in its sides; slight difficulty in swallowing, with a sense of constriction in the throat; breathing oppressed; sensation of the skin, and mental faculties, intact; pulse 100, without much power; bowels confined; no tenderness along the spine. Saline purgatives, with colchicum and small doses of calomel and Dover's powder, were ordered her. In the evening the heat of the skin had greatly increased; face flushed; the surface of the body was generally sensitive; motion of the jaws difficult and painful, and moving the limbs on the bed the same. During the day she had had several attacks of suffocation, and once, when some cold water was given her, she was in danger of being suffocated. The fingers and toes were flexed, and the back and neck rigid. The bowels had not been opened; she had passed water frequently, still but little had been voided. Blood to the amount of ten ounces was taken from the arm, twelve leeches applied to the spine, and a dose of croton oil given, followed by calomel and opium. The bleeding was followed by marked relief, and she obtained several hours sleep. The next day she seemed somewhat better; the attacks of suffocation, and the pain and sensitiveness were less marked. The bowels had been freely opened. The blood drawn was buffed, but not to the extent which the severity of the symptoms led me to suppose it would have been.

The pulse was 110. Blood was again taken from the arm; the calomel and opium were continued.

During the next five days she continued much in the same state. The calomel had not induced salivation; the use of mercurial friction was impossible, from the pain the friction excited; the pulse ranged from 96 to 106, but without much power.

Early in the morning of the sixth day she awoke after a few minutes' sleep, uttered a piercing cry; her body became stiff, and affected with convulsive shocks, her legs being moved up and down in the bed, but her arms were drawn up, her breathing hurried, jaws firmly closed; she was sensible. This state lasted for a quarter of an hour, and then gradually subsided, leaving her weak and exhausted, with her body covered with perspiration. During the attack she passed both urine and fæces involuntarily.

When seen three hours afterwards, the lower extremities were in a state of resolution and insensible. This state extended up as high as the tenth dorsal vertebrae. Tickling the soles of the feet induced slight agitations, but before the attack it would have excited convulsive movements. The cutaneous sensibility of the walls of the chest, as high as the chin, was increased; but it was more marked below than above the clavicles; that of the fore-arms was in the same state. The latter were flexed and rigid—the slightest attempt to extend them excited severe pain; from time to time they were affected with contractions, which excited severe pains, which extended to the sides of the chest. The muscles of the jaws were stiff, and those of the neck the same; voice feeble; pulse weak and jerking; heart's action the same; breathing difficult.

During the next twelve hours the symptoms increased in severity, and while attempting to drink a little water, she was seized with suffocation, and died in a few minutes.

It was not until the fourth day that permission could be obtained to examine the body.

The brain and its membranes were more vascular than usual, and a little fluid existed at its base. A considerable quantity of red serum escaped from the spinal canal, the vessels of the cellular tissue, between the dura-mater and spine, were highly congested, as were those of the membranes. The membranes generally were of a deep cinnamon hue; the cord was also tinged of the same hue. The latter, from the eighth dorsal vertebra downwards, was softened; it was less marked above this point, as high as the first dorsal vertebra; above this, as high as the fourth cervical vertebra, a state of induration, not strongly marked, existed.

Examined under the microscope, the parts where the greatest degree of softening existed presented globular corpuscles, granules, and broken-up nerve fibres. In the part where this was less marked, globular corpuscles were more plentiful, the granules fewer, the nerve fibres varicosed and broken. In the part where the hardening existed, granular corpuscles, intermixed with the nervous substance, were found.

Case XVIII.—*Congestion of the Cervical portion of the Cord, followed by Inflammation, which subsequently became general—Death.*[1] A lad, æt. 15, health good. During the last six months he had slept in a damp room. He was first taken ill on the night of the 11th of February, but, by bleeding and leeches, was able to return to his occupation as a goldsmith on the 17th. But on the 19th he relapsed, his arms were benumbed, he could not hold his tools, and for a quarter of a hour he was insensible. He slept well the next night, and the following day he felt better. His hands were convulsively flexed. Purgatives were given, followed by sedatives, with frictions to the limbs.

On the 26th, 27th, and 28th, he was pretty well, but he was seized in the night with a severe access of suffocation, and with cramps in his limbs. He had several attacks during the night, and the next day they were nearly constant. Since the commencement of the disease, he has from time to time suffered from palpitation of the heart. Entered the hospital on the 1st of March. When seen on the 2d, his face was flushed, eyes fixed, mind intact, and answers perfect, but voice trembling, and interrupted by groans, from pains in his limbs, and suffocative sobs. Fingers, hands, and forearms were strongly flexed, and the toes and feet were similarly affected. The muscles on the anterior part of the upper extremities, and those on the posterior aspect of the lower, were strongly contracted. Those of the abdomen and the masseters were equally affected. The jaws were with difficulty separated. The contraction of the muscles, and the pains, were increased during the accesses. If the members were extended or the larynx rubbed when they were present, he felt much relieved. Pulse 116, heart's action strong and rapid.

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[1] Bouillaud, *Journal Hebdom.*, Tome i. 1834.

He was bled from the arm, and fifty leeches applied to the spine; musk and opium internally, with enemas. Warm baths, with cold effusion.

Some slight amelioration followed the bleeding; half an hour afterwards he was placed in a warm bath for half an hour, and then into a cold one for the same period. He was much relieved, and in half an hour he was free from pain, and the accesses of suffocation had ceased.

At noon, fifty more leeches were applied to the spine.

3d, 8 A.M.—The accesses of suffocation, the cramps in the superior extremities had returned since 7 A.M., but less severe than the day before; the lower extremities were supple, and he could move them; pulse 90 to 100, skin warm and moist. Constipation. He was bled, with relief; thirty leeches were applied to the spine; musk and opium internally. In the evening he was free from pain, and passed a good night, and made water freely.

4th, 7 A.M.—Warm bath. At 8, more muscular rigidity, and slight contraction of the jaws.

The blood drawn was not buffy, and the clot was of but slight consistence. Continued medicines and bath. He passed the day tranquilly, but in the evening, having drank rather hastily, the suffocation returned.

5th, 8 A.M.—The suffocations continued, particularly when he drank; from time to time he had cramps in the thoracic extremities; more permanent contraction existed, but the lower extremities continued supple. No sweats; tongue white and dry; thirst; no action from the bowels for three days; face altered; pulse 108.

Scarifications to the upper part of the spine. By mistake he had a cold bath for half an hour; the cramps and the suffocations did not cease while he was in it.

After he came out, bottles of hot water were applied to the feet; he was calmer for some hours, although he felt icy cold. He slept pretty well; he passed water in the bath, but in the evening it was necessary to use the catheter.

6th.—The contraction of the muscles had returned with violence. The accesses of suffocation were severe, but principally during the deglutition of liquids; bladder distended; sweats; soubressants of the tendons; pulse 120 to 124. Bled and leeched.

Death at 11 A.M. in an access of suffocation.

Post-mortem, twenty-four hours after death.—Marked injection, external to the dura-mater of the cord. On opening the membranes a considerable amount of fluid made its escape, particularly from the cervical region. The anterior and posterior faces of the cord, and the cauda equina, were of a rose hue. The substance of the cord, particularly on its anterior face, had considerably increased in consistence, and towards its superior extremity in the anterior half a space eight or ten lines in length, circumscribed, was softened, and of a creamy consistence, and yellowish-red hue. The medulla oblongata and the annular protuberance, were livid; the brain was healthy, but the veins and sinuses, and also the choroid plexus, were injected, and the two lateral and fifth ventricles contained a little serum; the pericardium contained nearly two ounces of pus. No other lesion was discovered.

Case XIX.—*Feebleness of the lower extremities accompanied by Diarrhœa, consequent on Convulsions; Cure—Relapse—Cure. Three months later, Pneumonia followed by General Convulsions—Death.*[1]—A male child, æt. 22 months, was taken with diarrhœa in the first week of September. When seen fifteen days later by M. Billard, he was labouring under violent fever; face pale, frequent liquid motions, yellow and frothy; slight stupor existed, with feebleness of both legs, which yielded with pain under the weight of his body, but they preserved their sensibility. This incomplete paralysis had supervened after convulsions, and had occurred at the same time as the diarrhœa. Under treatment the diarrhœa disappeared at the end of four days, but the other symptoms continued. By the 1st of October he had recovered his appetite and natural colour, but not his gaiety. By friction to the spine and the subsequent application of two blisters for a short time, he was enabled to move first the great toe, and then the foot, of the right side. This was his state when I saw him in company with Dr Guéssin, on the 15th of October. A stream of warm water, strongly impregnated with salt, was allowed to fall twice a day, from a height of eight feet, on the spine.

After each douche he was placed in a warm bed, by which copious perspiration was induced. At the end of six days he could move the right foot and leg, and at the end of a month greater power of movement existed, but he could not stand. Frictions to the spine were alone used in the first half of November; but in the second the water was again employed, and with the best effect: he could sustain himself on his legs, and by support under the arms, walk.

During December the improvement continued under the use of the water; but the left leg was rather more sluggish than the right. He began to walk in the commencement of January, with the assistance of his mother's finger. On the 20th of January he was suddenly seized with watery yellow diarrhœa, the abdomen was tense, and painful on pressure; the pulse was greatly developed, skin hot and dry, and the tongue white. The water was discontinued, four leeches applied around the anus, and demulcents given. In three days all the symptoms had disappeared with the exception of the diarrhœa, which yielded on the exhibition of a few drops of laudanum in rice-water, for a few days, and his health was quite restored. The legs had, however, become again paralysed.

By returning to the use of the douches, by the end of February he could walk and run with ease, although there still existed slight lameness, due to feebleness in the left leg; but even this at last disappeared.

Three months later, on the 25th May, he was seized with pneumonia, which was combated energetically, but on the night of the 28th, convulsions of the superior and inferior extremities set in, with rigidity of the trunk, trismus, and contortion of the mouth. The convulsions ceased, but the lower extremities remained paralysed as to motion, but very sensible and painful; for a slight pinch, or simply displacing one of the limbs, caused him to scream. The pneumonia increased.

30th.—The pneumonia had increased, and he suffered from pain in the head, and was much agitated, but the legs remained motionless, the skin was hot, pulse full and quick.

In the night of the 31st, convulsions like the last again set in. The upper and lower extremities, the lips, the nostrils, the eyelids and the eyeballs, were affected with convulsive motions. During the convulsions, if the legs were touched, they were removed by a sudden jerk. These convulsions lasted two hours; he did not lose consciousness. The legs afterwards remained motionless, and only preserved their ordinary state of sensibility. In the morning he complained only of his head and legs.

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[1] Ollivier, *Observat.*, lxxxii.

The 3d and 4th of June were passed in the same state. The fever continued high. In the night of the 4th, the convulsions reappeared.

When seen at 5 A.M., he presented the following state: face pale and contracted, eyes open and fixed, pupils very much dilated, convulsive motions of the muscles of the face and eyes; trismus, rigidity of the trunk, constant motion (flexion and extension) of one or other of the legs and of the arms, involuntary discharge of urine; abdomen soft, pulse small and irregular; loss of consciousness for an hour only. Six leeches were applied to the angle of each jaw; cold water to the head and along the spine. The convulsive movements of the face ceased suddenly, consciousness returned, but the convulsive motions of the legs and arms continued another hour, when they diminished, and at the end of two hours ceased. The child complained of its head, and its left arm and lower extremities remained motionless. An access occurred two hours later, but with less intensity. The night of the 5th was passed in a calm state.

The 6th.—Sudden and passing shocks in the arms and in the legs—complete paralysis of motion in the last. In the left arm motion was very limited, but it was more extensive in the right; sensation continued; pulse feeble. In the evening general perspiration; respiration laboured. He fell into a state of profound coma, and died in four hours.

Considerable effusion of blood was found between the dura-mater and the vertebræ, particularly in the lumbar region. In the vicinity of the two first lumbar vertebræ and the first dorsal, the dura-mater appeared thickened, and remarkably hard; its colour, where it was in contact with the blood effused, was red. This thickening occupied its whole extent. In the interior the membranes of the cord offered no change. The substance of the cord in its lumbar portion was softened, semi-fluid, and yellow, mixed with striæ of blood. After directing a stream of water on this part for ten minutes, there remained only a network of vessels gorged with blood. Opposite the eighth dorsal vertebræ, the cord presented a firmness contrasting strongly with the softening below; it affected equally the anterior and posterior part of the cord. When incised, it offered a smooth polished surface. The medulla oblongata and the annular protuberance were equally resistent. A little fluid was found in the ventricles of the brain. The upper and lateral part of the right lung was hepatized, and the bronchia contained filamentous mucus. The ileum contained a lumbricoid worm.

CASE XX.—*After Diarrhœa of long continuance, sudden Feebleness of upper and lower extremities—Indications of Inflammation when Case first observed—Softening and Death.*[1]—A female, æt. 22, entered the hospital on the 15th of February 1847. On the 7th, she had been taken, while in the street, with feebleness, numbness in the superior and inferior extremities, and a sensation of heat in the loins. She was obliged to be carried home, and has not since left her bed. She has laboured under diarrhœa for some time, and her health has not been good since a confinement in November 1845, when she had peritonitis. She has now great difficulty in moving the head; motion of the trunk is impossible; severe pain in the cervical region increased by pressure; deep-seated pains in the limbs. She cannot raise the superior extremities fully, but she can move them on the bed; they have a tendency to flexion and abduction, and at moments to convulsive movement; sensibility of the skin increased in the body and limbs; cheeks highly coloured, heart's action normal, pulse 68 irregular, tongue red at point and edges, but white in centre; thirst and anorexia. Deglutition is difficult; after swallowing several mouthfuls, regurgitation takes place, then the power of swallowing returns. She was bled, and eight leeches and a blister were applied.

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[1] Eyrolle, *Thèse de Paris*, No. 62. 1826.

19th.—The lower extremities can be drawn up, but not raised ; motion of the head freer, but great fatigue and numbness follows ; incomplete incontinence of urine, with diarrhœa and involuntary escape of gas from the anus. The right arm is stronger than the left ; it can be nearly raised to the head, and slight power of grasping exists ; this not the case in the left hand. The calves of the legs are affected with numbness ; heart's action violent ; pulse 108 ; lips more open on the right side than on the left ; mind clear. Forty leeches were applied, and frictions with mercurial ointment to the spine.

20th, Motion of the head freer, the left lower extremity more feeble than the right, pulse 108, sensibility the same, vomiting.

23d, Has passed a sleepless night, pain in the abdomen, diarrhœa, numbness in both hands, and pains in the hams. In the evening she complained of a sensation of heat in the epigastrium, and in the left flank, increased by inspiration and pressure ; raising the legs excites numbness in all the extremities, pulse 108, skin dry. Mercurial frictions.

24th, Has passed a good night, motion of the superior extremities more extended, she can raise the left hand to head, pulse 96, vomits broth, but not milk and water. There is less pain in the neck, the left leg can be raised easier than the right. The slightest motion induces fatigue.

25th, Pains in the epigastrium and right hypochondrium ; numbness most marked on the left arm, pulse 108. Quinine, scarifications.

March 2d, Face pale, of an earthy aspect, at times regurgitations of green matters, motions passed involuntarily.

3d, Incapable of making any motion, scarcely able to speak, complained of pain in the epigastrium.

4th, Delirious during the day, hands contracted, death from asphyxia. The liver was large and in a state of fatty degeneration, gall-bladder small, duodenum and stomach contained bilious fluid, heart and lungs healthy, brain the same. The spinal cord, from the 4th to the 7th cervical vertebra, had undergone white softening. No other lesion.

Case XXI.—*After Sudden Suppression of Perspiration, Symptoms of Congestion of the Cervical Region followed by Inflammation and subsequent Implication of Brain—Death.*[1]—A male, æt. 43, of strong constitution, after severe exertion during the last days of May, was seized with severe pain in the superior part of the back, and difficulty in moving the head, on the 1st of June, supervening on the sudden suppression of an abundant perspiration from exposure to cold. He continued his occupation, that of a concierge, at the prison of Fort St Jean, Marseilles, up to the 5th. He was brought into the Hotel Dieu at 8 a.m. on the 6th. His pulse was strong and irregular, respiration free, but at times oppressed, particularly when he attempted to swallow fluids. When a bright object was presented to him, a painful sensation was excited, which obliged him to cover his eyes. Deglutition was impossible, for the moment a drop of fluid entered the pharnyx, spasm was excited, neither rigidity or contraction of the limbs existed.

7th, Delirious, face altered, conjunctivæ, dirty and injected expression, sometimes stupid, at others furious, extreme loquacity, general prostration, abdomen distended, insensibility, and stertorous respiration ; death. In the skull the arachnoid and pia-mater were gorged with blood, choroid plexus the same ; no serum in the ventricles. The under surface of the cerebellum, and the medulla oblongata, appeared slightly inflamed.

In the vertebral canal, the cellular tissue covering the dura-mater in the cervical region was infiltrated with blood ; the cord on its posterior part corresponding to the infiltration was inflamed, and the vessels ramifying on it were highly injected, and the arachnoid contained some red coloured serum.

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[1] *Clot. sur le Spinitis,* Montpel. 1820.

Case XXII.—*Epileptic since Childhood; symptoms referable to Throat, difficult Deglutition, and Suffocative sensations, followed by Implication, first of the left, then of the right arm, Softening—Death.*[1] A medical student, æt. 21, subject to epilepsy since childhood, complained, in the month of February, of slight sore throat. He had, at the same time, an epileptic access. The soreness of the throat increased, and he was constantly troubled by a body which he fancied was the uvula elongated, resting on the opening of the larynx, exciting nausea, and threatening to suffocate him. Deglutition was difficult, pulse full and quick, skin hot and dry. There existed, at the same time, pain, extremely acute in character and constant at the lower part of the back of the head, respiration was difficult and hissing. Nearly at the same time he complained of a feeling of numbness in the fingers of the left hand, which gradually extended up the forearm to the arm, and the whole member became affected with numbness, accompanied with difficulty in motion. The same symptoms were soon experienced in the right arm; the sore throat continued; 20 leeches were applied to the neck, but without relief. The next day the same number were applied, but with no better results.

The paralysis of the arms was more marked, he could with difficulty raise them; he could walk sustained by two persons. Excretion of the urine and fæces voluntary; fever and other symptoms the same. No enlargement of the uvula, or redness of the fauces, could be discovered; mind intact. The ensuing day, leeches were again applied. In the evening, he got more and more enfeebled, and the resolution of the upper extremities was complete, the dyspnœa increased, and he sunk eight days from the commencement of the attack. The membranes of the brain were injected, particularly at its base; the substance of the brain was generally sufficiently soft, particularly at the anterior part of the two lobes, and slightly injected; a little red serum existed in the ventricles; the grey substance of the corpora striata, and the optic thalami, were of a rose colour, and in the annular protuberance this colour was highly pronounced, without alteration of consistence. The cerebellum was softer than the cerebrum, and the rhomboidal bodies of its two lobes strongly injected.

In the spinal cavity, all the veins were distended with black fluid blood. This congestion was most strongly marked in the cervical region; the posterior aspect of the dura-mater, for two inches in extent, was covered with black blood, slightly coagulated, and infiltrated in the cellular tissue which united it to the vertebræ. This effusion corresponded to the inferior half of the brachial enlargement of the cord.

The lower half of the canal, between the pia-mater and the arachnoid, was filled with red serum, just below the lumbar enlargement on the last named membrane, four cartilaginous plates were observed, each about a line and a half in diameter; one also opposite the brachial enlargement. The spinal arachnoid adhered to that which lined the dura-mater by a number of cellular bands very resistent, in some points the two surfaces immediately adhered to each other.

The brachial enlargement of the cord was softened, the softening being seated principally in the grey substance, which was of a rose colour, and of a pulpy consistence. It occupied about two inches of its extent, the pia-mater in this part offered a state of marked redness, it was denser than usual, a number of vessels ramified on it. The cord below this point offered considerable softness, and the grey substance presented red points.

Case XXIII.—*Symptoms referable to Chest, with oppression and feebleness; sudden Retention of Urine, removed by treatment; Improvement; Constipation*

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[1] Ollivier. Obs. lxxvii.

followed by Diarrhœa; Forty-eight hours before Death, pain in Back, with Rigidity—Death from Effusion into the Pleural Cavity.[1] A man, æt. 27, delicate, and subject to skin disease affecting the whole body, appearing every year at the commencement of winter, but disappearing spontaneously in the spring, entered the hospital on the 26th of November 1846, suffering from oppression and feebleness, face pale, with a marked expression of fatigue and suffering, no thirst, anorexia, frequent cough, with expectoration of mucus, mixed with blood. Some defect in the pulmonary respiration was found, pulse 70, regular and feeble, skin dry, without heat, constipation, abdomen tense. Emollient drinks, with nauseants, were ordered. The expectoration improved, but the state of extreme debility existed. On the 4th day he complained of retention of urine, and the bladder extended up as high as the umbilicus; the urine was drawn off, it was coloured and muddy, highly acid: it became necessary to do this twice a day. The spine was examined, but no trace of any disease could be discovered. Stimulating turpentine liniment was applied to the back, with the effect of causing the urine to flow voluntarily; the retention returned twice, and then ceased to appear even after the turpentine application had been discontinued. The appetite returned, and the tongue became moist; he got up every day without assistance. But this amelioration was but of short duration, obstinate constipation set in, and the most irritating enemas only brought away some black and hardened fæces. To this state succeeded, in consequence of some excess, diarrhœa, the food passing through him unchanged, and the pulse became filiform.

Forty-eight hours before death, he complained of pain in the back, with rigidity, and suddenly, on the 7th of January, he complained of suffocation, the temperature of the body declined, and he sank from pleural effusion. The vessels of the brain and spinal cord were loaded with blood, the spinal arachnoid contained much serum; on the subarachnoid cellular tissue of the last dorsal vertebra, some drops of pus were found, the anterior colums of the cord were softened superficially to the extent of some lines, the softened part was of a yellowish red.

The left pleural cavity was full of serous yellow fluid, lungs no change, superficial ulcerations existed in the colon; liver and spleen gorged with blood; the mucus membrane of the bladder injected.

CASE BOOK.

V.—*Case of Tubercular Leprosy or Elephantiasis Græcorum.* Condensed from a paper read before the Medico-Chirurgical Society of Edinburgh by Dr Broadbent.

History. John M'Leod, æt. 19, a native of Stornoway, island of Lewis, admitted into the Edinburgh Royal Infirmary, under Professor Syme's care, March 19, 1855.

The patient says, that ten years ago, so far as he can recollect, a number of small red spots appeared on the lower and front part of the right thigh. When first noticed, they were hard, raised above the level of the skin, and about the size of a pin's-head; no pain or tenderness was felt in the part affected, and the skin between the spots was healthy in texture and colour. These papules gradually increased in size and prominence—many of them ultimately becoming confluent. The appearance of this eruption was not preceded or accompanied by any impairment of his general health, which was tolerably good.

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[1] Fallot, cited in *Gazette Médicale*, 1847, p. 812.

In a few weeks the corresponding part of the other thigh became similarly affected; and subsequently the disease attacked the back of the arms, forearms, and legs. During a period of four or five years, the disease progressed in severity and extent in the sites above-mentioned: during this time nothing in the way of treatment was done. The face now, for the first time, became affected; firm nodules formed beneath the skin, the surface of which, however, was not raised in the first instance, nor was its colour at all changed. The left cheek, just below the ear, was the first part affected, and subsequently the forehead, lips, and nose. He now consulted a medical man, who prescribed an ointment to rub the affected parts with. As no improvement resulted from the use of this ointment, he was advised to try the mineral waters of Dingwall, in Ross-shire, which he did in the summer of 1851. The use of these waters not only failed to do him any good, but seemed to aggravate his complaint—at least the disease progressed much more rapidly than it had done hitherto: the nodules in the face increased in number and size, the nose became much broader and thicker, the throat sore, the voice hoarse, and deglutition painful. By the aid of a mirror he examined his throat, and found the soft palate and fauces studded with tubercles of various size and prominence. The colour of the skin over the affected parts of the face assumed a yellowish-brown. His general health suffered, too: he was troubled with pain in the head, tinnitus aurium, and loss of the sense of smell. After leaving Dingwall he consulted Dr Maclean of Redurie, Sutherlandshire, who prescribed for him as follows,—

℞ Syrupi Iodidi Ferri.
Sig. "half a teaspoonful to be taken every morning."

℞ Tinct. Iodini, ℥ii.
Sig. "The large tumours of the face to be painted over every evening."

℞ Tinct. Iodini, ℥ii.
Potass. Carbonatis, ʒiss.
Olei Olivæ, ℥iv.
M.
Sig. "Liniment for the tumours on the legs."

Under the treatment thus prescribed, the patient improved considerably, the tumours becoming much reduced in prominence and firmness. The use of the medicines was persevered in for seven or eight months, when, as no further improvement resulted, it was given up. The face was less benefitted than the other parts of the body. The tumours were indeed diminished in size and firmness, but fresh ones made their appearance. By Dr Maclean's advice, therefore, the patient repaired to Edinburgh, to place himself under the care of Professor Syme.

Symptoms on Admission.

The patient is rather above the middle height, the face and head are large, the hair light-brown, the eyes blue. The lower and front part of both thighs is studded with dark livid patches of irregular form and size, elevated about one-sixth of an inch above the adjacent skin. The cuticle over these patches is thin, smooth, dry, and shining. On the back of the arms, forearms, and legs, an eruption of the same kind, though less marked, is found. Before coming under Dr Maclean's care these patches were much more prominent, so as to justify the term "tumour" applied to them by him. The face is enlarged and distorted by numerous protuberances of various sizes: when examined, they have somewhat the consistence of fatty tumours; the integuments over them are of a dirty, yellowish-brown colour, which changes to a dusky livid when exposed to cold. Over some of the tumours, the enlarged veins may be seen ramifying. Notwithstanding the evident enlargement of the face, there is no tension of the skin; on the contrary, it is remarkably soft, smooth, and flabby; the nose is flattened, the alæ much enlarged and thickened.

The ears are entirely free from the disease, and are of natural shape and size. The back of the soft palate, and fauces, are studded with small fleshy tubercles and elevated patches, some of which are in a state of ulceration; these, at one time, were much more prominent than they are at present. The pain on deglutition, and hoarseness of the voice, from which he formerly suffered, have now entirely left him. The hair of the eyebrows is extremely scanty; it began to come off first, the patient says, after using Dr Maclean's prescription. There is no trace of hair on other parts of the face—the scalp, however, is pretty well covered, and the hair does not come off at all. On examining the body generally, there is considerable emaciation, the skin is of a dirty, dusky hue. There is a remarkable absence of hair;—on the pubes a few scanty hairs are to be seen; but these, according to the patient, have only made their appearance within the last four months. The testicles are small; the glands in the groin are considerably enlarged and indurated. On the front of the legs are two or three small ulcers; they are situated on parts not affected by the disease, and are healing satisfactorily. He sweats profusely at night, the breath is not fœtid, the teeth are good, the appetite and digestive powers good, the senses are not impaired—the tinnitus aurium and loss of the sense of smell having passed away—the urine is healthy, the blood, as far as can be ascertained by the microscope, is also healthy.

Causes. The cause of the disease, in the present case, is difficult to determine; no hereditary taint can be made out. His father and mother, both living and in good health, are natives of Ross-shire, as have also been their ancestors for several generations back; to the best of the patient's knowledge, none of them have been affected like himself. He was born and bred in the island of Lewis, whither his father removed some twenty years ago to manage the salmon-fisheries there. He has never been exposed to infection, never having met any one affected like himself. His diet has been good, although he has lived much upon fish.

Treatment. On admission he was put on full diet, and took 10 drops of Donovan's solution in water three times a day. For some time he made sensible progress, the lumps on the head becoming smaller and softer, and no fresh ones appearing. He became worse, however, about the 15th of June; his appetite failed him; he was restless, and could not sleep at night; several fresh tumours made their appearance on the ears and cheeks, the skin over which was red and tender to the touch. Donovan's solution was now stopped, the bowels were freely opened by purgative medicine, a febrifuge mixture was given, small doses of morphia were exhibited at night. Under this treatment his health somewhat improved; he slept better at night, and his appetite returned; nevertheless the tumours continued slowly to increase in size. The patient becoming very despondent, expressed an anxious desire to return home, to which no objection was made. He quitted the hospital on the 30th June.

VI.—*Case of Branchial Fistula of the Neck.* By J. MATTHEWS DUNCAN, M.D., Lecturer on Midwifery, etc., etc.

THE following is one of a class of cases which has of late years been brought into much notice by the descriptions of Dzondi, but more particularly of Ascherson, and by the labours of Rathke. The author is not disposed now to believe they are so rarely to be met with as he formerly imagined. For, lately, besides the case he is to detail, he has heard of three others. The following example is interesting, chiefly as a very characteristic specimen of the congenital fistulæ of the neck, described by Ascherson.

Local Appearances. E. A., a boy, æt. 16, of a delicate constitution, has, about a line and a half above the insertion of the sternal tendon of the right sterno-mastoideus muscle, a reddish spot, scarcely so large as an ordinary pin-head, having in its centre an opening almost imperceptible to the naked eye. Every day, as far back as he can remember, a little whitish viscid fluid has come away from this spot. The ordinary condition of the spot is to be covered with a small scale of the dried secretion. About a drop of this secretion occasionally issues spontaneously in the course of the day. This, when dried on the shirt, has the appearance of a yellowish spot of dried albumen. Most of the fluid is brought away at night, and, occasionally, also in the morning, at which times he is wont to empty the fistula by pressing his finger along the neck, from above downwards, between the sterno-mastoid and trachea, with a milking-like motion. At such times, the quantity discharged is equal to many drops. On examination, this secretion is found to consist of a viscid fluid, containing numerous large mucous globules. He has never observed anything but this fluid come from the aperture, nor can he, by closing the mouth and nostrils, and making a violent expiratory effort, force any air from the mouth through the fistula.

History. His mother states that the little orifice attracted her attention almost immediately after his birth, in consequence of stringy mucus being found adhering to the spot. Whenever he sucked, the pure milk flowed drop by drop from the orifice.

VII.—*Case of Rupture of the Aorta.* By G. W. Smith, M.D., Penang.

Symptoms. 31st July 1855, I was called at half-past five P.M. to attend Mr G. B——, æt. 47, married and a family, who was said to be in a fit. He was upon a couch, looking deadly pale, very anxious, bathed in a cold, profuse perspiration, and with a weak, quick pulse. He complained of great weakness, of *severe* pain across the middle of the chest, and in the neck; but there were neither cough nor difficulty of breathing. He said that he suddenly felt sick, giddy, and would have fallen, but for the support of a friend. During the previous part of the day, he had experienced no indisposition, and only a short time before had eaten dinner with usual appetite, but was a little fatigued from having been up all the previous night, watching a person in an apoplectic fit, and was taken ill when about to accompany the funeral of the body of that individual. On inquiry, he added that for some months back, he had felt short of wind on going up hill, but did not experience the same on ascending a stair, and had been subject to rheumatic pains (as he termed them) about the chest and neck, but was not liable to palpitation, and considered himself in the enjoyment of good health. He was a man of short stature, rather robust than square, and of quick dogmatic temperament; a missionary by profession, and performed the duties of a preacher and teacher, and for some years had also been a little engaged in agricultural pursuits; his habits were strictly temperate.

He was conveyed to his house, about half a mile distant; a mustard poultice was applied to the chest, a little spirit of lavender administered, and his damp clothes removed. He felt somewhat relieved, after the mustard acted, of the pain of the chest, but still complained much of that of the neck. At seven P.M., when I left him, the skin had regained a natural warmth, the pulse was improved, but the countenance was still very pale.

History. I learned from Mrs B., that Mr B., although usually, to all appearance, in good health, had yet, during the last year and a half, repeatedly complained of being sick and faint, requiring him to lie down for a moment, to recover; and that this was especially the case after food; but in these attacks there was nothing that excited her alarm.

I warned her that there probably was serious organic disease of the heart or arterial system, and advised that the usual medical attendant, who was then absent, should be consulted.

1st August, at half after three A.M., was sent for in a great hurry, and on my arrival a few minutes after, found Mr B. dead. It seemed that, about nine P.M. last night, the pain of the chest returned, that of the neck continuing persistent; but as they were deemed rheumatic, no particular alarm was taken. He continued to suffer in that way, more or less severely, up to three A.M., when, sitting up in bed, he suddenly called out, "Another fit, a fit," and dropped down. He was thought by Mrs B. to have fainted, and she used such remedies as occurred to her for that, for some time before she discovered that he was dead.

Diagnosis. Internal hemorrhage, which had by some means been arrested for a while, and then returned with fatal effect.

Autopsy. Five hours after death, in presence of Mr Williamson of the Madras Medical Service, and of Mr Rose of the Bengal Medical Service, the medical attendant of the family, who could not be present at the beginning, but arrived during the course of the examination.

The external appearance of the body bloodless. The thoracic and abdominal cavities being laid open, and the innominate vein being wounded in reflecting the parts, blood flowed from it, and oozed also freely from the sections of the swollen veins. There was a considerable deposition of fat between the layers of the abdominal parietes, and fat was also abundantly found deposited in the omentum. A cursory inspection only was made of the abdominal viscera, and all appeared healthy. There were some old adhesions of the pleura costalis and pulmonalis, at the apex of right lung. The left pleural cavity contained several ounces of serum. The pericardium being slit open, exposed to view a large amount of coagulated blood, which being removed, extravasation was observed beneath the cellular covering of the aorta. The lungs, heart, and pericardium, as well as the aorta and a portion of the innominate and left carotid and subclavian arteries, were all carefully removed from the body. The lungs being found healthy, were detached from the rest. The different cavities of the heart were then laid open, in succession, and were found empty; and all, as well as their respective valves, were, so far as we could see, free from disease. The pulmonary artery was then slit open, from its origin to its division, and exhibited nothing abnormal, nor did the valves between it and the ventricle. The cellular substance and pericardial covering having been dissected off the aorta, extensive extravasation was seen to exist between the external and middle coats of that vessel, from its origin to the giving off of the large vessels of the neck, and to a small extent along their course. The aorta was then slit open from its origin to nearly where it perforates the diaphragm, to which extent it had been removed. Throughout the upper part, as far as the giving off the large vessels of the neck, there were numerous deposits of the atheromatous degeneration in and beneath the serous coat, varying in size; some being mere points, two or three about as large as a sixpence, but none very prominent, so as to project much into the vessel; and the interior of the vessel was studded with small holes, some of which were sufficiently large to admit the round end of a surgeon's probe, which perforated the inner and middle coats, and admitted the probe to the extravasated blood, observed between the external and middle coats. A rupture of the inner and middle coats of the vessel, of several lines in extent, was discovered at the origin of the innominate artery, and another of smaller extent at the origin of the left carotid. Through these ruptures the blood had escaped, and separated the external from the middle coats, throughout the whole circumference of the aorta from the ruptures to its origin, and a thin congestion lay between them, but no deposit of fibrine. The external coat had given way near the heart, and allowed the blood vent into the pericardial sac. The aorta was not dilated throughout any part of the extent of it examined, and the valves at its mouth were perfectly healthy. The head was not opened.

Remarks. The immediate cause of death was, no doubt, loss of blood through the rupture in the aorta. One or both of these, in all probability, took place to some extent, the moment complaint was first made of sickness and faintness; but the external coat resisting for a time the escape of the blood, permitted the patient to rally; the strain, however, continuing upon that coat, and probably becoming greater from the extent of the ruptures increasing, it at length gave way, and permitted the blood to flow into the pericardium, at which moment the second and fatal fit happened—nine and a half hours after the first. The swelling, occasioned, in the first place, by the escape and lodgment of blood between the coats of the vessel, may perhaps explain the severe pain experienced across the chest and in the neck, by the pressure that would exert upon the recurrent branch of the vagus nerve of left side, which winds round the aorta in that situation. The absence of dyspnœa is perhaps, too, accounted for by the absence of disease of the heart or lungs, or of any other disease that could seriously retard the circulation. It is probable that the disease of the coats of the aorta was of some years standing; but with no obvious symptomatic indications, and with insufficient causes to produce marked physical evidence, I think it not likely that the disease could have been discovered during life. Could the fits of sickness and faintness, occasionally experienced, have arisen from a slight escape of blood through the holes noticed, which had afterwards been resolved?

PENANG, 18th August 1855.

VIII.—*Case of Aneurism of the Aorta, occupying the Arch, and obstructing the left Carotid and Subclavian Arteries; with lesser Aneurisms, one of which opened into the left Auricle; and with Aortic and Mitral Regurgitation.* By W. T. GAIRDNER, M.D., Physician to the Royal Infirmary, Lecturer on Practice of Physic, and on Clinical Medicine.

IN the August No. of this Journal (p. 143), I narrated a case of aneurism at the root of the neck, accompanied by contraction of the pupil on the affected side, and thereby forming an illustration of the results of injury to the important nervous structures in that situation. Taking the case in connection with the physiological data there mentioned, I believe this conclusion to be irresistible; but as others may be led to suppose that the interference of the aneurism with the circulation of the left carotid had, by its influence on the cerebral circulation, something to do with the contraction of the pupil, I am led to advert again to the subject, in order to show that this was probably not the cause. I take pleasure in referring to the elaborate and interesting inaugural dissertation of Dr Kussmaul,[1] "On the Influence of the Circulation on the movements of the Iris, and other parts of the Head," as bringing to the test of experiment all that can be said on this view of the subject. This dissertation bears the date 1855, and has been transmitted to the Editor of the *Edinburgh Medical Journal* since the publication of my last paper.

Dr Kussmaul's researches show, that the result of suddenly cutting off the flow of blood through the carotid arteries is to produce a certain amount of contraction of the pupil, *followed*, however, *after a short interval, by dilatation.* On the other hand, an increase in the flow of blood is usually succeeded by dilatation of the pupil. But, admitting that these results are clearly and unquestionably as stated, it does not appear that a really permanent and considerable contraction is, under any circumstances, the consequence of interference with the circulation alone. I am led, indeed, by the extreme care and delicacy with which the measurements in Dr Kussmaul's experiments were conducted, and his great and praiseworthy caution in endeavouring to avoid collateral sources of error, to the conclusion, that the amount of effect produced was by no means such as to be easily ascertained, or to carry confidence to his mind by any means short of those which he employed. It could not, therefore, have been in any degree comparable with the contraction of the pupil produced by interference with the sympathetic trunk, or with that observed in the case of aneurism narrated in the August number.

But it is best to let nature answer the questions which she herself proposes. The future observation of cases of aneurism, with special reference to this point, will furnish ample data for deciding to what extent, and in what manner, the pupil is affected by the permanent suppression of the circulation through the carotid, on one or other side. In the meantime, I beg to contribute to this inquiry the following abstract of a case which seems (so far as a single carefully observed instance may be trusted) to prove that the influence exerted by an aneurism upon the pupil, through the medium of the arterial circulation, is not considerable, or even permanently appreciable. The case is in other respects, also, worthy of being recorded.

General Symptoms.

T. G., tailor, æt. 45, a bloodless, feeble, but not greatly emaciated person, was at intervals under my care for many months during the end of last year, and during the present spring and summer. He complained chiefly of a sensation, which he termed "breathlessness," but which, on examination, proved to be more similar to the angina pectoris of Heberden. His voice was husky and high-pitched; nevertheless he had no severe laryngeal symptoms, and no dysphagia; his chest expanded readily and fully, and there was no lividity. He complained of pain about the left arm and shoulder, very much increased by stretching the left arm upwards, or by bending the neck towards the right side. In sitting he stooped very considerably; when recumbent, he was often seized with paroxysms of suffering. Angina-like paroxysms were also readily brought on by agitation, and even by any kind of examination into his case. The feet were œdematous. The following facts were ascertained on physical examination:—

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[1] Wurzburg, 1855.

Physical Signs. In the main trunks of the left arm, and in the left carotid, the pulse was entirely suppressed. In the *superficialis volae* of the left side, pulsation could sometimes be discovered. The carotid and subclavian of the right side pulsated with extraordinary strength and fulness, the pulsation being attended by a vibrating thrill and a whiffing murmur.

At the upper sternum, from the middle of the clavicle on the left side to one and a half inches beyond the sterno-clavicular articulation on the right, there was dull percussion, merging into the cardiac dulness at the third left costal cartilage. The cardiac dulness at the level of the nipple was upwards of four inches by light percussion, and extended to the right of the sternum. At the upper sternum there was a short systolic murmur, of a somewhat rasping character, but distant and inarticulate. The second sound was suppressed, or nearly inaudible, over the whole upper sternum. At the lower sternum there was heard, with each sound of the heart, a very loud, distinct, and articulate murmur,—that of the second sound, however, predominating, both in length and loudness, over the first. The second sound itself was entirely lost in the murmur. At the apex of the left ventricle, the first sound was heard, accompanied by a very loud and distinct murmur,—the second sound being inaudible, and without murmur.

The vertebral column was considerably bent in the cervical and dorsal region, but nowhere angular unless at the sixth and seventh dorsal, where it was a little more prominent than elsewhere. No localized dulness of percussion along the spine; but the left back, near the spine, was generally a shade more dull than the right.

At the left apex, before and behind, the respiration was much diminished; elsewhere, natural. A blowing murmur was heard along the aorta, in the left back.

The pupils throughout the disease, were found, on repeated examination, perfectly similar in size, perfectly contractile, and apparently quite natural.

Progress of Case. After a protracted illness, this patient finally succumbed to the ordinary symptoms of valvular heart disease. He had little or no cough or expectoration, but the dropsy increased and gained the chest, causing great orthopnœa. During the last week of life, the right side of the face was very dropsical, as also the parietes of the chest and back. The conjunctiva of the right eye was so much relaxed, as to form folds infiltrated with serum, which protruded between the eyelids, and gave the face an exceedingly distressing appearance. Ultimately he sunk exhausted, in the course of July 1855.

Post-Mortem Examination. The body was examined on the second day after death. The majority of the organs were free from considerable disease. The lungs were highly œdematous, and the pleuræ contained fluid on both sides. The heart was enlarged and dilated; it may probably have weighed 20 ounces or more; but being removed along with the aneurism and the half of the sternum, it was not weighed. The upper sternum, where dull percussion existed during life, was closely attached to a large tumour which arose from the aortic arch, and passed backwards so far as to have caused slight erosion of the bodies of two or three dorsal vertebræ. The tumour was also closely attached to the apex of the left lung, but neither the air-passages nor the œsophagus were in the slightest degree involved in it.

On laying open the large tumour, by an incision parallel to the sternum, and from above downwards, it was seen to involve the whole upper part of the arch, which, from its commencement at the aortic valves to its termination in the descending aorta, was dilated and atheromatous. The left half of the dilated portion was filled with very firm laminated clots of pale fibrine, which passed from the sternum to the back part of the sac, completely overlaying and blocking up the openings of the left carotid and subclavian trunks. The innominate artery was perfectly free, but did not appear enlarged in proportion to the force and fulness of its pulsation during the life of the patient.

The aortic valves were incompetent. On examination, their defective action was found to proceed from a separation, to the extent of about an eighth of an inch of the two posterior segments, which were a little thickened at this part, but otherwise normal. The divergence of the segments appeared to be the result of a yielding of the arterial wall at this point; immediately above and immediately below the segments in question, an opening led into a small aneurismal sac. The upper of these aneurisms would have held a large filbert; it communicated with the aorta by an oval opening half an inch in diameter. The lower sac, which had a somewhat smaller orifice towards the endocardium, passed directly backwards to the left auricle, with which it communicated by an opening which admitted an ordinary catheter with ease.

The mitral valve was obviously incompetent, owing to the rigidity of that portion of its curtain nearest the aortic orifice. Here, also, a small sacculated dilatation of the endocardium was formed, bordered on the one side by the muscular substance of the heart, and on the other by the rigid portion of the mitral valve.

The rest of the heart, though enlarged, presented no valvular or other deformity.

In commenting upon this case during the life of the patient, I repeatedly called the attention of the students, who saw it with me in the Infirmary, to the state of the pupils, in connection with the position of the aneurism, and the obstruction to the circulation in the left carotid. That no appreciable *permanent* effect upon the pupil is produced by interruption to the carotid circulation *per se*, is, I think, sufficiently proved by this single instance.

In regard to the murmurs, I remarked, that while it was by no means impossible that one or both of them might be generated in the aneurismal sac, there was a much greater probability that they were due, in this instance, to valvular disease of the heart itself. The existence of such disease seemed presumable from the great amount of hypertrophy and dilatation of which there was evidence; while the ordinary rules of physical diagnosis permitted us to refer the systolic murmur in great part to the mitral orifice. That the diastolic murmur heard at the lower sternum, was due to the aortic regurgitation, appeared probable from its great intensity and prolongation as compared with the systolic bruit, which is usually the louder of the two murmurs occasionally heard in aortic aneurism. Lastly, the faintness of the sounds over the sac, as compared with their loudness and distinctness at the lower sternum, I presumed to afford proof that some thick mass of substance, of a kind calculated to intercept the vibrations of sound, lay between the current of blood in the sac and the surface. This condition was found to be fulfilled in the fibrine, which lay in layers over the upper sternum, to the thickness of more than an inch, and which, as I presume, acted as a muffler to the sounds diffused in that direction. Of the facts, at least, as above stated, there can be no doubt.

The sources of the collateral circulation in this case would have formed an interesting subject for anatomical research; but this inquiry could not, under the circumstances, be undertaken.

The opening of the small aneurism into the left auricle had produced, apparently, no distinctly appreciable clinical result.

IX.—*Case of Un-united Fracture of Humerus, cured by Resection.*

By James Spence, Esq., Surgeon to the Royal Infiamary.

History.

On the 11th November 1852, A. Johnston, æt. 22, had his arm caught in a threshing-mill, by which the humerus was broken at two points; there was one fracture two inches below the surgical neck of the bone, and another at the junction of the middle and inferior thirds of the bone. He was seen by Mr Falconer of Loanhead, who adjusted the fractures, and put up the limb in pasteboard splints. I saw him in the beginning of February 1853, at the request of Mr Falconer, as the lower fracture had not united. On examining the arm, I found the upper fracture firmly united; the lower one, however, was quite moveable, but there was no overlapping of the ends of the bone, nor any deformity when the limb hung by the side.

Treatment. Splints.

As the injury was comparatively recent, I advised a further trial of the splints, with pads, so as to keep the parts in accurate contact, the use of nutritious diet, and exercise in the open air. This plan was persisted in till the end of March 1853, when I again examined the arm. There was no attempt at union, and the ends of the bone were felt as if atrophied. I tried to excite action by introducing, by subcutaneous puncture, a strong sharp needle, or rather narrow knife, down to and between the ends of the bone, so as to break up the fibrous structure between them, and to scrape their surfaces. The splints were then carefully re-applied, and the arm firmly supported. At the end of six weeks, I found that no change had been produced.

Subcutaneous Puncture.

Seton.

In September 1853, I passed a seton between the ends of the bones, and retained it for some days, till suppuration occurred; but even this gave rise to very little local excitement, scarcely any inflammatory swelling supervening. What little there was, passed off very quickly on the seton's being withdrawn, and no benefit resulted from its use.

Resection.

I had previously proposed resection of the ends of the bone, but at the same time thought it right to explain that it was attended with more risk than the methods hitherto adopted, and the young man's friends were at first opposed to its performance. After some months had passed, however, the patient was so anxious to give it a trial, that his friends consented, and I performed the operation in April 1854.

Operation.

I made a longitudinal incision on the outer side of the arm, about three inches in length, its centre corresponding to the seat of fracture. The arm was then bent at the false joint, so as to render prominent the ends of the bone, and the incision was carried down to them. I had determined to separate the bone as little as possible from the surrounding parts, and therefore merely cleared the lower end of the upper portion sufficiently to enable me to saw through about half its thickness, and completed the section with a pair of strong bone-pliers. I then did the same to the end of the lower fragment, and snipped of some irregular portions. There was very little bleeding, and no vessel required ligature. The incision was closed with four points of suture, dry lint applied, and the arm placed in a rectangular splint, so adjusted as to allow the wound to be dressed without moving the limb. No constitutional disturbance followed the operation; the pulse never rose above 80, he suffered almost no pain, and the wound united entirely by the first intention. Indeed so little swelling or irritation appeared at first, that I was afraid this operation also would fail, but at the end of ten days there was firm limited swelling at the seat of fracture, and the patient stated that he felt the sensation of constant pricking pains in the part. At the end of six weeks from the operation, there was hard swelling, involving the ends of the fractured bone, and it seemed firmly consolidated. I therefore sent him home to the country, but directed him to keep on the splints for some time.

Result.

I saw him several times, and I allowed him gradually to use the arm; but in November 1854, I found that from using too much liberty with the arm, it had bent considerably at the united part, showing that it had not quite consolidated. I therefore fractured it fairly across, and re-adjusted it. This was attended with more pain and swelling than had yet occurred after any operation; but in two months afterwards, when I removed the splints, I found firm osseous union, and he can now use the arm with perfect freedom.

Commentary.

In reviewing the case just related, there are two points which, I think, deserve attention;—first, the causes which originally prevented osseous union; and secondly, the plans of treatment adopted.

The causes generally mentioned as leading to want of union in fractures, are either some state of the constitution debilitating the reparative powers, or some error in the treatment, such as maladjustment of the broken bones, too early movement of, or too much interference with, the injured limb. Occasionally, also, the interposition of some portion of muscular tissue between the ends of the fracture prevents firm union.

In this case there was nothing in the treatment which could have led to want of union: the parts had been well adjusted, and accurately retained in position, and there was neither shortening, overlapping of the ends of the bone, nor any other deformity when I first saw him.

As regards constitutional causes, he stated his health to be good; but he was rather pale, and suffered occasionally from dyspepsia, apparently depending on an inveterate habit of smoking; whilst the small amount of local or general excitement caused by any of the operations performed on the arm, would argue a want of energy in the vital powers unfavourable to repair. Still, there was nothing so marked in the state of his general health as sufficiently to account for failure of union, and I think it is to the nature of the local injury in this case that we must look for the explanation.

It will be observed, that the humerus was broken across at two points, and that the fracture was the result of direct violence of a kind likely to inflict great injury on the surrounding soft parts. The upper fracture united readily and completely, but the very consolidation at that part would diminish the free circulation through the medullary Haversian structure, and, consequently, impair the vitality of the portion of the shaft between the two fractured points, whilst the bruising of the soft textures would be likely to impede the periosteal supply of nutrition, and thus the lower fracture would be placed in most unfavourable circumstances for union.

Secondly, as regards the treatment, the simpler measures at first adopted proved quite inefficacious, apparently producing scarcely any local excitement whatever. In deciding on resection of the ends of the fractured bone, I determined to remove no more than the rounded and atrophied ends, and to do so with as little disturbance of the parts immediately surrounding the bone as possible. Having observed, in some cases which had come under my notice, where resection had failed, that fully two inches, or even more, had been removed, it always seemed to me, that not only the amount of bone thus removed, but also the great denudation required to effect its removal, was sufficient to account for the failure, besides increasing the risk of severe constitutional disturbance. Hence I adopted the plan described, by which I was enabled, by using the bone-pliers, to complete the section without insulating the humerus, except the mere portion to be removed; whilst the bone so divided would more closely approach to the condition of fracture than if fairly divided by the saw.

The result fully answered my expectations, for there was scarcely a trace of constitutional irritation, whilst the incision healed by the first intention. At the same time, we must bear in mind that the patient seemed peculiarly unexcitable, as shown by the results of the former operations with the needle and seton. The osseous union was felt to be firm, but he had used the arm too soon and too freely, probably before complete ossification had taken place throughout its thickness, and so the bending had occurred. This, however, was scarcely to be regretted, for it led me to fracture it again to obviate deformity, after which the deposit of new bone was much greater than at first after the resection.

X.—*Peculiar Case of an extensive Sanguineous Tumour, or Extravasation of Blood into the substance of Thigh.* By JAMES B. BALFOUR, M.D.

THE peculiar features of the present case seem to me to justify my bringing them under the notice of the profession:—

History. The subject of these remarks was a young man of about 24 years of age, a carter by trade, stout and healthy, and strictly sober, withal. He was principally engaged in the carting of coals to the canal, for shipment to Glasgow. The coals are deposited in a store on the banks of the canal, and are afterwards thrown into the boats by the heavers, by means of large broad shovels,—the carters having nothing more to do than to empty their coals at the store. In the month of October last, however, the heavers were so busy drinking, that they could not be got to load a boat, and the coalmaster to whom this young man drove, asked him to give a day's loading, as they were in a push. On Saturday, the 7th of October, he accordingly proceeded to the employment, shortly after eight A.M., and continued all day up till five P.M., engaged shovelling coals into boats. Men who are accustomed to this employment do it with great ease, and use only their hands in pushing the shovel amongst the coals. In our case, however, it was different. He was unaccustomed to such employment, and, getting soon tired, he used the front part of his right thigh in pushing the shovel in, and continued thus all day. He felt very tired next day, and experienced considerable pain in the muscles of the thigh; but as he could easily account for it, he thought nothing of it—Sunday's rest, he thought, would put him all right. He was engaged to drive his cart to Falkirk tryste, on Monday morning, with a party and their tent, and in order to be ready for the market beginning, they started before two A.M. It was a very wet cold day, but he remained to assist the party in erecting the tent, and getting everything put in order, and did not leave until nearly five P.M. His clothes were drenched through, and he felt very cold and chilly, so he walked instead of getting into the cart. He continued to do so for the first four miles; at last, when getting very tired, he jumped into the cart, lay down in the bottom on some straw, and was soon sound asleep. He slept till close upon home, and on leaving the cart, found himself stiff, cold, and exhausted. Next day he went to his employment as usual, and on Thursday following returned to Falkirk for the party he had taken on Monday. It was only on Friday that he first experienced really severe pains in his right leg, which obliged him to drop work earlier than usual; but although lame, and suffering severely from pain, he continued to go out every day until Tuesday, 17th October, when he was fairly laid up, and I was sent for.

Symptoms. On hearing the whole history of the case, as I have described it, I proceeded carefully to examine the limb, but could detect nothing abnormal. The leg was the same as the other; no swelling—not even tenseness of the muscles. The only thing he complained of was pain on touching the muscles on the anterior aspect of the thigh, especially about the upper third, and also on moving the limb so as to call those muscles into action. In general health he appeared quite well: tongue clean, pulse regular, and all the functions performed naturally.

Treatment. I came to the conclusion that it was an attack of muscular rheumatism, induced by the sleeping in his cart with his wet clothes on, and accordingly prescribed warm opiate, fomentations, and embrocations, with strict rest. He continued under this treatment for several days, during which time he complained of his limb only when he attempted to rise and walk, but there was still no appearance of swelling. On Friday, the 20th, in consequence of being called from home early, I did not see him until late in the evening, when he was complaining more than usual. I found that he had spent a restless night; that he had had a slight rigor, followed by profuse perspiration; and that all day, although he had kept closely in bed, he had been suffering from a deep-seated pain in the limb. On examination, I found that, for the first time, I could discover some tension of the muscles. At the same time there was a little feverishness, and his bowels had not acted that day, nor had he made much water. I ordered leeches to be applied, followed by the warm opiate, fomentations, and at same time prescribed a saline diaphoretic. Next day I found him much better—he had a tolerable night, bowels moved freely, plenty of urine had been passed, and the deep-seated pain in the limb was greatly relieved, but the leg was distinctly more swelled. The fomentations were continued, and the leg gradually increased in size until Tuesday evening following, when distinct fluctuation was felt—the swelling of the limb at this time being very great. I was satisfied now, that it was going to turn out a deep-seated abscess, which had taken this long time to develop itself; and I therefore endeavoured, by every means, to hasten on the formation of the pus, and get it to point externally. On the Thursday evening, I found the tumour distinctly pointing in that triangular space formed between the middle of the *tensor vagina femoris*, and the upper part of the *rectus* and *vastus internus* muscle; and I therefore determined to open it, and remove what I presumed to be pus.

Incision. On Friday the 20th, with the assistance of two medical friends (who, I may remark, were of the same opinion as myself in regard to the case), I proceeded to the operation. Having put the patient, at his own anxious desire, under chloroform, I inserted the bistoury into the tumour just at the edge of the rectus muscle, when to my astonishment, and I must confess dismay, a sudden rush of pure arterial blood caused me instantly to desist, withdraw my knife, and stop the aperture with a pledget of cloth. We concluded that it must be an aneurismal tumour I had cut into, although no pulsation had been detected before, although we had most carefully examined the tumour. After a short consultation, it was agreed to proceed with the operation as quickly as possible, and if it was an aneurism, or connected with the rupture of an artery, at once to tie both ends. I enlarged the opening, therefore, to upwards of three and a half inches, large quantities of arterial blood escaped, and we rapidly removed from the wound large clots, also distinctly arterial. The blood thus removed filled two vessels, which would hold from twelve to fourteen ounces each. I ought to have mentioned, that during the time I was doing this, one of my assistants compressed the femoral artery, so as to prevent any unnecessary hæmorrhage. No pus could be discovered escaping with the blood, although we carefully examined for it. Having carefully cleaned out the tumour, I proceeded, before relaxing the pressure on the femoral, to examine its course and size. I found I could pass my finger up to the back part of the *trochanter major*. I could pass it round the anterior part of the femur to the muscles on the interior aspect of the thigh, I could not reach far enough with my finger to touch the bottom of the sac, but I could pass a probe as far down as the popliteal space. The anterior surface of the femur appeared to be the only part from which the muscles had not been detached. The posterior surface of the femur, and the outer lateral aspect, from the trochanter major down to the upper part of the outer condyle, were quite bare, the bone being simply covered with its periosteum, which in every part appeared to be intact. Having satisfied ourselves on these points, we removed pressure from the femoral, when, to our astonishment, there was no bleeding followed; and I may mention that no hæmorrhage ever took place subsequently, between the operation and his complete restoration to health. Light bandaging was applied to the limb, along with simple dressing; healthy pus soon began to form, and the healing progressed rapidly.

Result. About four weeks after this I required to make a small counter-opening in the lower part of the thigh, to allow some pus to escape, but with this exception, everything went on favourably; and although the recovery was, as might be anticipated, slow, yet, by the end of December, he was able to walk, and about a fortnight after the New Year, he was driving his cart as usual, with only a slight degree of lameness; and when I saw him in the end of July last, he informed me that he never felt stronger in his life than he has done since, and that, if there is any difference in his limbs, he is rather inclined to believe that the right one is the stronger of the two.

From the interesting nature of this case, I have been led to enter much more fully into its whole history, from first to last, as, without a thorough knowledge of every particular, it would be impossible for us to form any correct opinion of it, or the causes which induced it.

Remarks. And now, with the preceding facts before us, several questions naturally suggest themselves, viz., from what vessel did the blood come from? Was it in consequence of a rupture of the vessel, or from what other cause was it, that the blood escaped? What was the cause of the intense pain in the leg from the beginning? And what was the cause of the rigor and the deep-seated pain which followed?

We shall proceed to offer some remarks, which to us appear to account satisfactorily for the various symptoms observed in this case. Thus, then, we find a healthy young man, suddenly called upon to perform labour to which he is unaccustomed. At this occupation he is engaged for upwards of eight hours, and during its continuance he is pressing the hard head of a shovel continually against the muscles of the front of the thigh. This operation, as many one is aware, would, to some extent, bruise the muscular substance, and, as might be expected, he complained next day of pain and stiffness of the muscles of that thigh. This I have no doubt would have passed off with a little rest and ease; but we find him, on the second morning, or not much more than thirty-six hours after, called upon, to travel to Falkirk, a distance of eleven miles, on a cold, raw, wet day. Here he gets his clothes drenched with rain. On his road home he lies down in his cart, falls asleep with his wet things on, and reaches home, cold, stiff, and wearied. The muscles of his leg, which were already bruised, are at this time in a condition more susceptible of morbid action, and we accordingly find he is attacked with some degree of muscular inflammation. This also might have been subdued by a little attention and rest, but this he did not take, as he continued his usual employment, and actually returned to Falkirk again in three days. All this tended to keep up and increase the inflammation. It was this inflammation, then, which in my opinion caused that pain which he experienced when walking and moving his leg; and although there was no perceptible swelling, I do not think this sufficient to militate against this theory. This pain continued for a week, notwithstanding the appliances employed, when suddenly a rigor comes on, and for the first time tension of the muscles is observed. Now, in my opinion, during this time, the inflammation, which was at first muscular, had extended to the coats of some artery, and the question is, which? From every consideration of the case, I am induced to think that it was the *external circumflex*, and the middle branch of that artery, as it was in the region which it supplies where the pain was always complained of, and where the deep seated pain at length occurred, was the very spot where we would look for that vessel. The inflammation of the coats of the artery, in my opinion, had gone on to suppuration; and this suppuration, and the sudden bursting of the blood through the ulcerated coat, which caused the rigor, and the effusion of blood separating the muscles from their attachments, will fully account for the deep seated pain which followed this lesion.

We have thus answers to the whole four questions propounded, and, in our opinion, a sufficient explanation given for all the symptoms observed. First, it was the external circumflex, or a branch of it, from which the blood flowed; and considering where the pain existed, I do not think any other artery could have given rise to the extravasation of blood which followed. Again, I believe it could not have arisen from rupture, but must have been caused by inflammation, followed by suppuration; for had it been caused by rupture, the extravasation would have taken place much sooner; whereas we have the lad suffering from the 9th to the 20th October, before the slightest swelling, or even tension of the muscles appeared. In reference to the pain, again, I think, adopting this opinion, it is easily explained; because, in the first place, we have the pain caused by the muscular inflammation, and thereafter the bursting of the artery, we have the tracing of the deep seated muscles from their attachments. It may be asked, how does it happen that if the coats of an artery had given way, no hæmorrhage followed the removal of the blood from the tumour? In answer to this I would say, that it may have been, and appears likely to have been, as sometimes occurs in aneurism, that a clot had formed in the opening of the artery, thereby stopping the flow—that, after all the blood was removed from the tumour, this stoppage remained—and that the *vis medicatrix naturæ* had completed the cure, aided by the external pressure applied.

I have thus concluded the history of one of the most interesting surgical cases which came under my notice during my residence in Kilsyth. I have been most minute in the particulars of the history of the case, as these came particularly under my observation, and were carefully noted by me; and if I have erred in my opinions in explaining the causes, etc., which presented themselves, I shall only feel too happy to be corrected by those who have made this branch of our science their more particular study.

37, Albany Street, Edinburgh.

Part Second.

REVIEWS.

Om Pesten i Stockholm, 1710. Af J. W. Broberg, Ph. Mag., Stockholm, 1854.

The Plague in Stockholm in 1710. By J. W. Broberg, Ph. M., Stockholm, 1854.

Were we to measure the publication of Herr Broberg, not by its bulk, but by the peculiar interest of its curious research, we should be willing to transfer the whole of it to our pages. We are so accustomed to have our knowledge presented to us in a state of copious dilution, as if solid learning were something too formidable for us habitually to tamper with, that it takes us by surprise when we encounter an author, whose almost every sentence conveys a fact or a striking picture; and who, drawing upon stores with which the ordinary reader is little familiar, recals before us a period and events the minuter outlines of which were already beginning to fade into indistinctness, and dextrously links them with the general experience and sympathies of humanity.

The details of a desolating pestilence, more even as they relate to their influences on man's moral nature, than on his physical constitution, bear a striking resemblance to each other, at whatever period of the world's history they may have presented themselves: and we have the same dark picture, presenting to us everywhere the like traits and outlines, whether we follow the description of what Thucydides himself witnessed, and in part suffered, more than twenty centuries ago, in Athens; or what Lucretius has woven into the strains of his immortal verse; or what Procopius has narrated, from his immediate observation, of the myriads of victims at Byzantium, in the sixth century; or what, long afterwards, Boccaccio, also an eyewitness, has poured out, in his sonorous periods, and with a depth and solemnity of feeling which redeems his too prevailing grossness, regarding the devastation of Florence; or what has been gleaned by our own Defoe; or what the author before us has gathered, with a sound discrimination of the leading points of interest, from the cotemporary records of his own country. We know nothing in language more impressive than the whole of Boccaccio's description of "la mortifera pestilenza, a nostra correzione mandata," which assailed Florence in 1348. Its sadness, with its music, moans through the imagination like a Miserere of Pergolesi; and there is no passage in literature which clings more tenaciously to the memory than its solemn and anthem-like close, bringing into such striking contrast the freshness of life and the darkness of annihilation.[1] We do not attribute to Mr Broberg any analogous display of the poetic temperament: still, in the sombre grandeur of his theme, and the mournful earnestness of its associations, there is a necessary element of poetry, which does not fail, sometimes, to reveal itself in his thoughts and his language. While our science binds itself ever more closely to the interests of humanity, we trust that it will never far separate itself from the graces of literature; and we have to thank Mr Broberg for having presented us with a judicious combination of both, which has thawed in us, for a while, what another Scandinavian writer has termed "the critic's icedom," and the perusal of which has afforded us sincere gratification.

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[1] Petrarch was also a cotemporary of the great plague of the fourteenth century, among the victims of which he had the misfortune of numbering the Cardinal Colonna and Laura. Hence the sonnet:—

> "Rotta è l'alta colonna, e'l verde lauro,
> Che facean ombra al mio stanco pensiero."

At a time when medicine was ill-represented by the Arnold of Villa-novas, it is pleasing to be able to refer for even facts in medical history to such testimony as that of Boccaccio, or of this still more illustrious writer. After recording the ravages of the pestilence, as such that "non solum nos amicis, sed mundum omnem gentibus spoliavit," and telling of the "vacuas domos, derelictas urbes, squalida rura, arva cadaveribus angusta, horrendam, vastamque toto orbe solitudinem," he questions if it will be believed by posterity, "cum ipsi, qui vidimus vix credamus;" and adds the exclamation: "O felicem populum pronepotum, qui has miserias non agnovit, et fortassis testimonium nostrum inter fabulas numerabit." (*Fran. Petrarchæ Epist. familiar.* Lib. VIII., Ep. 7.) Twenty-five millions were computed to have perished in Europe alone, from the recurrences of this pandemic between 1347 and 1382, or in a space of 35 years.

It appears from the researches of our author, which extend in various quarters, but have been materially aided by the previous labours of Brenner, Swedberg, and Ilmoni, that it was in the thirteenth century that the "*Diger Död*," the *great death*, first appeared in the northern latitudes. As usual elsewhere, in every visitation, the two great calamities of famine and pestilence seem to have been ordinarily associated. In 1340, we have the first distinct notice of the approach of the plague to Sweden: and, in 1350, so many perished in Stockholm, that all the dead could not be buried, and "the streets were covered with corpses." In 1451, it was estimated to have destroyed 9000 individuals in that city: in 1484, 15,000; and in 1495, 18,000 of the inhabitants perished. In 1557, certain of the directions published under Gustavus Vasa, for the promotion of cleanliness, and directed towards obviating the recurrence of like calamities, would have delighted a modern Sanitary Commissioner: though we might prefer to refer him to the "Statuta Gildæ apud Berwicum facta," supposed to date from the middle of the thirteenth century, for proofs, in our own country, that at least some of the measures have even here been long anticipated; fearing, however, that they were indicated rather than enforced. Nor does Boccaccio fail to speak, in Florence also, of the "umano provvedimento per lo quale fu da molte immondizie purgata;" or of the "molti consigli dati a conservazion della sanità." In 1565, 18,000 persons again perished in the Swedish capital. It was necessary to bury them, the cotemporary chronicler tells us, "in heaps upon one another, in large and wide trenches, as men salt pork." There was neither time for funerals, nor priest to conduct them. The latest of the aggravated attacks in this century occurred in 1588; and a dreadful famine closed its dark calendar, in which we are told, that "starved figures, dead or dying, were found upon the fields or highways, or beside or within the houses, many with grass, or hay, or the like in their mouths; and often dogs were seen gnawing the corpses." During the seventeenth century, the plague-poison became less virulent, though it still occasionally extended its ravages. At the commencement of the eighteenth century, with the reign of Charles XII., the materials for the generation of malignant disease arose in rank profusion.

War, atmospheric phenomena received as prodigies, telluric convulsions, inundations, intense cold, failure of vegetation, poverty, and national calamity, gave each their baneful influence: and so, in 1710, came that invasion of the pestilence, to which the author has more especially directed his attention.

There was at first the usual unwillingness to believe or admit that the fearful visitant was already within their homes; but the report of Dr Hiærne that, on the 17th August, a tailor had applied to him, who "complained that his wife was severely sick, having in her groin a large and painful swelling, and that ten persons in the same tenement had already died, all within three days, while the landlord himself, a glazier, was also severely sick," confirmed as it was by farther inquiries, removed all plea for hesitation, and measures were immediately recommended to meet the calamity, by the appointment of "a plague-house, plague physicians, and plague barber-surgeons, with any other necessary appliance to obviate the disaster." Among the proceedings adopted was a visitation of the houses, to ascertain the sick and the dead; and it was ordered that, among the poor, the affected should be separated from the healthy, the dead buried as speedily as possible and strewed over with quick-lime, and the vicinities fumigated with tar, or with fires of juniper branches. Then, as now, the pig was the proper object of pursuit of the sanitary authorities. Every householder in the city was "ordained, strictly and earnestly, to remove his swine, which were the cause of an abominable stench." The barber-surgeon, Ziervogel, complained to the College of Physicians, that "there were about 400 sick, and among them many with buboes in the arm-pits and groins, but they lay in great wretchedness, upon bare, hard boards, covered with filth and vermin, and that it was impossible to touch or treat them without the greatest danger." In the midst of its labours, the College was tenacious of its dignity. The Burgomasters and Council had assembled at a tavern, or cellar, after the fashion of the times, and had invited the presence of a physician, on the part of the College; but the Preses declared that "it was not becoming to meet in a cellar on so important a matter, and they might come hither." A Board of Health was finally established, consisting of physicians, a portion of the magistracy, the clergy, and surgeons; in order that, in terms of the writ of appointment, "as each in his calling and station had different duties in this affair, and yet it was necessary that each should support the other for one object, the staying of the pestilence, they might assemble together in one place to hold counsel, determine the best measures, and have them carried into execution." It would be well, in the present day, if Boards of Health were always as rationally constituted.

In the mean time the devastation was rapidly extending. The affected houses were marked with the cross, and the inmates held rigidly secluded, to wrestle alone with their anguish and despair. Famine aggravated the prevailing misery. The bonds of society, and the nearer ties of families, were pitilessly rent; thieves prowled from house to house, and the very graves were plundered; while the property in the dispeopled dwellings found ready claimants and inheritors, often with very questionable titles. The vicious ran into every description of excess; and, with feasts and revels, many sought to deaden their terrors, but the unbidden guest crossed the thresholds, and the cup fell from the drinker's hands. Neither was it, doubtless, altogether without cause that interments were interdicted after seven o'clock in the evening, on the score that, at a later hour, they might favour delinquencies, and even murder and assassination be hushed up and concealed. Yet, in the midst of this depravity and license, instances were not wanting of the purest charity and self-devotion. Emerentia Rydelia, the wife of the clergyman, Andrew Lysing, spared no efforts during the whole period of the pestilence, to tend and comfort the sick within her husband's parish, and to shroud the dead. If we have grown softened by prosperity in these times, and a comparatively slight calamity perplexes and terrifies us, we may still applaud, all the more, that wonderful strength in the tender breast of a woman, which could sustain her gentle spirit in the discharge of such harrowing duties, amid scenes whose physical horrors were so often still more deeply overshadowed by the foulest traits of moral recklessness and profligacy. What could be worthier of honour than this heroism of the Swedish matron, without ostentation, without enticement, and without reward; yet what celebrity could ever be narrower than that of Emerentia? But, of all statistics, the falsest and the most capricious are the statistics of fame.

It had already been ordained, under severe penalty, that there should be a cessation of all visits of mere condolence, of ordinary burial processions, and of large assemblages at funeral entertainments, at marriages, baptisms, or social banquets. Even the attendance at divine service was restricted; the schools were discontinued; and servants were enjoined not to change their places at the usual term, but to remain in the situations they occupied at the time; and dogs and cats were doomed, wherever met, lest in their wanderings they should diffuse the contagion. To prevent the over-crowding of the ordinary cemeteries, new places of burial were opened for the emergency. But the prejudices of the commonalty revolted against this arrangement, even more strongly, with many, than against all the other mischiefs of the pestilence. They carried their dead surreptitiously, under the cover of night, to the church-yards, hallowed by religion and by old associations; or, rather than their relics should repose otherwise than under the shade of sacred walls, they preferred that they should remain to rot within their dwellings. It was another of those illustrations of the times which belong to all times: the

————————————"sæpe
Rixantes potius, quàm corpora deserentur"

of Lucretius. Men were now specially appointed to conduct the burials. Huge vehicles, like ammunition waggons, were provided at the public cost. Drawn by four horses, and preceded by a bell which was kept constantly ringing as the sole requiem of the dead, the driver went with a long whip at their side, repeating the dismal cry: "Have you any poor corpses here?" Thus from fourteen to fifteen bodies were carried at a time to the common sepulture, some in coffins, but some coffinless; and, even with the former, the lids were wrenched off before interment, and burned, and lime was strewed over the corpses. Sometimes the funeral procession was even less ceremonious. A single horse drew along a truck, containing only three bodies at a time; and astride above them rode the driver, with a tobacco-pipe in his mouth, a bell in one hand and a whip in the other, and so the sad remains were conducted to their last rest. Once only, an eye-witness reports the most miserable procession of all: the body, thrust into a sack from which the head projected, was borne across a stick by two women. "Such," says a cotemporary writer, "are the pitiful and wretched funerals which in these times, (God amend them!) we daily and hourly see. God be gracious to us, and let me never over-live such days again."

In the commencement of 1711, the virulence of the disease began to subside; and on the 30th of April the citizens were enabled to offer up their thanksgivings to God, that he had been finally pleased to stay the pestilence amongst them. The mortality had been prodigious. The population of Stockholm, in 1840, was 84,000: at the time of the pestilence it is estimated by Ilmoni, we know not on what precise data, at 60,000; and of this number many had fled early, along with the court, from the scene of havoc. Yet 20,000 are computed to have perished during the six months that the devastation lasted; women and children having suffered in the greatest proportions. "Whole streets stood empty, but the churchyards were over-filled." The attacks had been ordinarily sudden; with severe rigours, and great anxiety. The most characteristic symptoms were the petechiæ, the phlyctenæ, the carbuncles, and the buboes. Death usually occurred on the fourth day; but some died suddenly, and on the very streets. Many slumbered away the last hours of their existence: others died under intense suffering. Some were delirious, and "raved to the uttermost:" others retained their full consciousness, and expired without pain. Children, of 8 to 10 years of age, are said to have met death, as it were in triumph, and in a kind of ecstasy; with glowing speech and prayer, singing hymns, foreboding the death of bystanders, and with other similar spiritual phenomena.

Of the treatment we need say little. If we had not the "mussabat tacito Medicina timore," of the fine prosopopœia of the philosophic poet, we had at least all the hopelessness which belongs to a contest with so vast a calamity, when the harassed physician, powerless to arrest a virulence which he should have been invited and supported to prevent, has to struggle not only against the disease, but against the wide disorganisation of the community, and the superstition, the recklessness, and the despair of the victims. Amulets were extensively worn, sometimes of precious materials, as pounded sapphires, rubies, and pearls; but sometimes of viler constituents, as dried toads and spiders. A popular cure for the epistaxis which occurred frequently, was to draw up the nostrils the vapour of "stercus porcinum" laid upon a heated brick: an odour which assuredly must have suggested little analogy with that of the unguent of Catullus,—

> "Quod tu cum olfacies, Deos rogabis,
> Totum ut te facient, Fabulle, nasum."

But medicine had then also its loathsome superstitions. It is in these times that our own Quincy tells us, how this *stercus porcinum* abounded in a pungent and nitrous salt; and that it could be "managed into a form as cleanly and palatable" as the *stercus equi non castrati*, which, we learn moreover, enjoyed cotemporarily a great reputation in pleurisies and asthmas.[1] It was then, too, that the chemical physicians of the period, at least more delicate in appliances, if not less faulty in hypothesis, confided in vinegar as the best preservative, because neutralizing the alkaline sharpness of the humours, which they assigned with a ready faith as the proximate cause of the disorder. It seemed, almost, as if it was to be necessary to go back to the older legend, preserved among his other boundless stores by Grimm, to discover all that was of real avail: "Der teufel soll gesagt haben, gegen die kuga (pest) gebe es nur ein mittel, hacke und haue: d. h. begräbniss."[2] Doubtless, however, there was a better resource in the quaint prescription, dating from the 16th century, which our author quotes on the authority of Prof. Schröder: "Take a quarter of an ounce of divine providence, a pound of sound repentance and amendment, and two pounds of good patience; mix together, and apply night and morning."

We have thus shewn, both by a liberal abstract, and by a perhaps too copious sprinkling of comment and illustration of our own, our high appreciation of the admirable production of Mr Broberg, and we trust that we are now not solitary in the interest with which it has inspired us. The visitation which he has brought so vividly before us, is fortunately the last by which his country has been afflicted; and only twice since have similar calamities visited other portions of Christianized Europe. None of our readers will have forgotten the fearful history of the ravages of the plague in Provence, in 1720; when the four cities of Marseilles, Arles, Aix, and Toulon are said to have lost nearly 80,000 of their inhabitants, more than half the number having perished in Marseilles alone. We trust they have still less forgotten the magnanimous exertions, in the cause of intensely suffering humanity, of Belzunce, the Bishop of the latter city, of the Chevalier Rose, and of Estelle and Moustier, two of its magistrates. Fifty years later, when civilisation had mitigated the sources of pestilence in happier countries and systems of society, the plague visited Russia, entering the city of Moscow, and its surrounding districts; and we are here indebted to Orräus, a Finlander, and the last medical writer of eminence who has described the disease from his own experience in a Christian city, for a detailed description of its ravages.[1] The population of Moscow, at that time, probably little exceeded 200,000; and of this number, Orräus tells us, there died in the months of August and September from 400 to 1000 daily, and 21,401 in the latter month alone. The mortality, in all, exceeded 55,000 in the city; and almost as many more were swept away in the districts adjacent. With the usual irrationality of fear, under such emergencies, it was found, at the close of the epidemic, that a thousand corpses had been concealed beneath the floors or in the garrets of the houses, from the anxiety of the survivors to escape the rigid measures of control which had been instituted by the authorities. Nearly all the sufferers were of the lower classes.

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[1] Compleat English Dispensatory, 1718, pp. 148, 160.

[2] Deutsche Mythologie, p. 1141.

But, if the conditions of the European population are no longer favourable to the propagation of the earlier forms of pestilence, we have evidence enough that there are other modes of prevalence of devastating sickness, for which the favouring circumstances continue abundant amongst us; and still, nowhere more remarkably than in Russia, have these elements of destruction been suffered to maintain themselves in pitiless energy. In the cholera epidemic of 1847-48, the cases in that empire were estimated to be no fewer than 1,961,949; and the deaths were 808,201. It is by the pressure of such circumstances, that medical questions seem to force themselves upon us under political aspects: and it becomes only another means of expression of zeal for science, and its humanizing influences, to desire that, at the close of the present war, the position of civilized Europe may be such as to entitle it to demand, with an indignant outcry, the privileges and the blessings of freedom for the Russian serf; and to shake off from itself the anomaly of struggling in distant continents for the liberty of the negro, while tolerating the existence of slaves more abject, and more oppressed, consumed by the havoc of war as well as by the misery of disease and the oppression of toil, yet of its own blood, and within its own confines. Let us hope, as the reward of our painful efforts, that we may advance this further step in the dignity of our common manhood; and may effect the final abrogation of that serfdom, which we cannot help recognising as largely increasing, and imbuing with peculiar intensity, the sources of human suffering : and which must ever be dangerous to our purest interests, as placing the sullen strength of barbarism at the disposal of the craft of ambition, and giving to the mass the force without the virtues of civilisation.

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[1] Orräus, Descriptio Pestis quæ anno MDCCLXX in Jassia, et MDCCLXXI in Moscua grassata est : Petropoli, 1784.

On the Pathology of Hooping-Cough. By GRAILY HEWITT, M.B., London, Lecturer on Comparative Anatomy and Zoology at St Mary's Hospital Medical School, and Surgical Registrar to the Hospital. London, 1855. 8vo. Pp. 34.

THIS short paper, communicated to the Harveian Society, appears worthy of notice in our pages, inasmuch as it contains the first detailed account which has been published, for many years, of the state of the lungs and bronchi discovered after death by hooping-cough; a disease so common, and among poor and neglected children, so frequently fatal, as to have deserved better treatment at the hands of scientific medical inquirers. Every one, indeed, familiar with medical literature, must remember the admirable paper of Dr Alderson, in the Medico-Chirurgical Society's Transactions for 1830; a paper which had the great merit of being almost the first indication in English literature of those states of the lung now so well known as *pulmonary collapse*, but often confounded with the effects of inflammation. Dr Alderson's descriptions are further interesting to the reader of the present day, in not being characterised by those worn out phrases to which the morbid anatomist is so much accustomed; they are pre-eminently fresh and vigorous pictures from nature, and therefore as full of instruction now as they ever were; nor, though the pathology of the subject has greatly advanced since that period, do we find that Dr Hewitt has anything to correct, although he may have much to add (in the way of detail), to the contributions of his predecessor.

An epidemic of hooping-cough, which occurred in the parish of St Marylebone, and which proved very fatal in the Infirmary and Workhouse, gave Dr Hewitt an opportunity of investigating the morbid appearances in that disease; and in availing himself of these opportunities, the author has entered at large into considerations with which many of our readers must be familiar, as to the differences between collapse of the lung and the other forms of consolidation. The rationale of the production of pulmonary collapse has also been considered by the author, whose views, on this point, are in close accordance with those of Dr W. T. Gairdner, to whose papers he alludes at some length. We shall not follow him in this inquiry, but rather extract, for the information of our readers, the following passage upon the occurrence of pulmonary collapse in hooping-cough:—

"The facts I am about to submit to you go to prove, that the catarrhal inflammation of the bronchial tubes which occurs in hooping-cough is, in fatal cases, attended almost universally with collapse of the lungs. It will then be obvious that an attempt to direct attention to the frequency and importance of this co-existence will not be misplaced, inasmuch as the fact will have considerable influence on the question of the appropriateness of the one or the other plan of treatment, in cases where such a co-existence is to be suspected.

"The observations which form the basis of this communication, and the results of which will now be given, have most of them been made at the St Marylebone Infirmary and Workhouse, where, during this last spring, hooping-cough has been the cause of a considerable mortality. Most of them have been made on fatal cases which have occurred on one or other of these institutions; but some of the cases came under my notice elsewhere. The observations are nineteen in number. The ages of the children who were the subject of them varied from four years to one month, the average being eighteen months. In all, the state of the lungs was carefully noted. The chief lesion found after death was collapse of the lung substance. The following is a statement of the degree to which this pathological condition manifested itself in the different lobes of the two lungs.

"In the *right lung*, portions of the upper lobe were found collapsed in six cases, and in four more to a less degree.

"The middle lobe was collapsed, wholly or in part, in sixteen cases.

"The lower lobe was more or less affected with collapse in eighteen cases.

"In the *left lung*, the upper lobe presented the same lesion in fifteen cases, the whole of the anterior tongue-like prolongation being in most of the cases affected.

"The lower lobe was collapsed more or less in eighteen cases.

"In seven of the cases, the portions collapsed were also congested—in some to a high degree."

Bronchial abscesses, the "vacuoles" of French authors, occurred in some cases. Their resemblance to tubercles is noticed by the author. True dilatation of the bronchi was not met with in any of the nineteen cases, the bronchial abscesses being always terminal, and occupying the air cells rather than the bronchial tubes.

"The *mucous membrane* of the bronchial tubes was in some cases slightly injected. In almost all, the tubes were filled more or less by a muco-purulent fluid, rather tenacious in consistence, and in the tubes leading to collapsed portions non-aërated.

"The air cells in the lobules immediately adjoining the collapsed portions were enlarged, although this enlargement was never found to be great in degree. It was, however, quite obvious with the aid of a lens. The space created by the collapse of certain portions, appeared to be filled up by a corresponding increase in the bulk of the parts adjoining; thus, in some cases, where the tongue of the upper left lobe was collapsed, it was tilted downwards and backwards, while its position was occupied by an emphysematous portion of the remainder of the lobe.

"True inflammation of the parenchyma of the lung was only seen in four cases. In one, a large portion of the upper right lobe was affected, and tubercle found in the bronchial glands. Hepatization to a slight extent, and confined to one or two lobules scattered here and there in the lung, was met with in one or two other cases. The bronchial glands were, in all cases where the attention was directed to them, enlarged, congested, friable. In three of the cases they were infiltrated with yellow tubercle.

"The state of the *pleura* was also observed. In five cases only were there any adhesions found, and in two of these the lungs were tuberculous. In one of these tuberculous cases, both plueral cavities contained a tolerable quantity of effused fluid, but no fluid was found in the other cases. No appreciable change was detected in the vagi nerves, although they were examined in most of the cases.

"The *larynx* and *trachea* presented nothing remarkable; they contained generally a certain quantity of puriform fluid. The mucous membrane was never markedly injected.

"In all these cases, then, the bronchial tubes were the seat of a catarrhal inflammation, affecting chiefly the smaller tubes, and in many cases the air-cells themselves. An inflammation occupying the smaller air-tubes has been called variously capillary bronchitis, broncho-pneumonia, catarrhal pneumonia, vesicular bronchitis. The two latter terms seem the most appropriate, particularly as applied to the affection of the lungs which occurs in hooping-cough. There would appear to be an intimate connection between this catarrhal pneumonia and collapse of the lung; the one seems to have an important influence in causing the production of the other. What has been improperly termed lobular pneumonia is, in reality, collapse of the lung, brought about by the catarrhal inflammation of the minute bronchia. It is not pneumonia at all in the true sense of the word. In the hepatisation of pneumonia, the lung substance is enlarged, hard, firm, very friable, breaking down into a purulent-looking detritus on pressure; the cut surface is granular, and inflation produces no effect in restoring to the parts affected the natural appearance and physical character. The hepatized portions are non-crepitant, and sink in water, agreeing in these characters with the collapsed portions.

"Too much importance can scarcely be attached to this distinction; and there can be no doubt that many cases in which collapse of the lung only existed, have been treated as if pneumonia were present, and therefore inappropriately. An antiphlogistic mode of treatment might suit the one kind of case, but it would tend to hasten a fatal result in the other."

The following remarks on the secondary conditions of the lungs following collapse are also important:—

"Another question of great interest is the secondary effect of collapse of one portion of the lung on other portions not in the same condition. The observations I have made on this subject enable me to state that a secondary effect is produced, and what that effect is I will now go on to specify. As I have before remarked, the size of the air-cells at different situations on the surface of the lungs was examined with the aid of a lens, the result of such examination being to establish the fact that in the lobules immediately adjoining those which were collapsed, the air-cells were decidedly enlarged. The extent of surface which presented this enlargement of the air-cells bore a certain and constant ratio to the amount of lung which was collapsed; thus, when the collapse was slight in amount, the air-cells in the adjoining lobules were little altered, and *vice versâ*. These facts are strongly confirmatory of the opinion of Dr Gairdner, as to the production of emphysema generally by collapse of the lung. The vacuum which would be formed in the cavity of the thorax by collapse of a portion of its contents, must necessarily be occupied by some solid or gaseous material, and it is obviously the most probable occurrence, that in order that this vacant space may be filled up, the lung substance near it will be further expanded, the air-cells becoming thus dilated, and emphysema produced. According to this theory, emphysema is a *complementary* lesion. Dr Gairdner is of opinion that emphysema is always produced in this way. This may or may not be the case; my own observations are not sufficiently numerous to enable me to give an opinion. Thus much may, however, be with truth stated, that in those of the foregoing cases in which emphysema was observed, this theory seemed the only adequate explanation of the appearances which presented themselves."

Some good remarks on the symptoms of hooping-cough, and a valuable table of cases, conclude the memoir, which cannot fail to carry with it, on perusal, the conviction that its author has pursued his inquiries in the right spirit and in the right direction. We hope ere long to meet him again.

Atlas der Pathologischen Anatomie, mit besonderer Rücksicht auf Diagnostik. Von Dr Carl Ernst Bock, Professor der pathologischen Anatomie an der Universität Leipzig. Mit 146 gemalten Abbildungen auf 24 Tafeln. Leipzig, 1855.

Atlas of Pathological Anatomy, with especial reference to Diagnosis. By Dr Carl Ernst Bock, Professor of Pathological Anatomy in the University of Leipzig. With 146 coloured representations on 24 plates. Leipzig, 1855.

In the preparation of this Atlas, the author informs us that his leading objects have been purely practical. It has been his design to lay before the practitioner representations, carefully coloured and true to nature, of the morbid organic changes which form the basis of those internal diseases which constitute the more ordinary subjects of medical treatment; and to present nearly the whole of these as founded upon original drawings, taken from actual dissections. To complete his plan, he has desired to append a short, yet what he has judged as for all practical aims a sufficient, description of the different diseased structures; and a candid consideration of the possibility, probability, or impossibility, of their accurate diagnosis during life, maintaining principally a regard to the methods of physical examination.

To the busily-employed medical practitioner, who, in most positions, and in the midst of his multifarious toils, could give only so much leisure to the study of the more minute investigations of the pathologist as would make the attempt a mockery, we need not say that the objects contemplated by Professor Bock are of signal interest and importance. We may therefore cheerfully proceed to judge with what amount of success he has advanced towards their accomplishment, estimating solely the results by his aims; without pausing to wish that he had extended the scope of his labours, and that, more especially, he had further thrown upon his subject certain of those often brilliant, but still too frequently uncertain lights, which we have gratefully to acknowledge as the recent offerings to science of our microscopists and chemists. The difficulties which the isolated practitioner has to encounter, in obtaining opportunities for himself verifying his diagnosis by autopsies, and the burdensome cost of the more extensive publications on pathological anatomy, laying before him the enlarged experience of others, have limited the diffusion of this precious description of knowledge, whether through direct inspection or by pictorial representation, to an extent which has undoubtedly proved of serious detriment to the progress of sound instruction. Whatever means may be supplied, therefore, for obviating this defect constitute a manifest boon to our profession, and to the nearest interests of society; and we would gladly see the day, when the possession of such a work as that now before us became recognized as an acquisition to the practitioner, as indispensable as his diploma. When, with the natural progress of the human mind, the abstruse science of the present age has become the every-day experience of another, we may look for a different plan of presenting the subject; more capacious in its grasp, and more penetrating in its details, yet not the less adapted to ordinary service: but we must be content, meanwhile, to disseminate, in the largest sense, the perfectly known, in its broad and simple features, as it is here presented to us, that we may have some sure basis from which to advance afterwards, with the greater confidence, towards the doubtful and the obscure.

We have ourselves chanced to have an opportunity of examining many of the drawings, as executed for this work by Herr Cellarius; and we can testify, not only to the elaborate care of the original designs, but to the admirable skill with which they have been transferred by the graver of Krause, and coloured by Hauptvogel, both artists of repute. The main object of assiduity has evidently been, to render the representations everywhere distinct and faithful. No one, who is acquainted with the practice of the arts of design, will be surprised to observe that a result of this laudable anxiety has been to impart, occasionally, somewhat of hardness of outline, and glare of colour, to certain of the subjects; but he will be an uncandid critic, if he do not admit that the same tendency to outstrip nature has not rarely presented itself, also, in most of the far more costly publications which have preceded the work of Professor Bock. While we own the debt of obligation incurred by the profession through the labours of Cruveilhier, as evinced in his celebrated "*Anatomie Pathologique;*" or through the Atlas of Albers, very inferior to the French work in execution, yet still rich in highly valuable and copious illustration; or the eminently distinguished works of Carswell and Gluge; or the smaller, and less recent, but in many respects admirable publication of Hope; we must yet remember how greatly most of these, although merely lithographs, exceed the cost of the volume before us, the engravings for which have been executed in steel. We believe that the latter may be procured in this country for about forty-five shillings only, and yet the paper and letter-press are far superior to those of most illustrated works published either here or on the Continent; while we consider that not a few of the subjects, as those of the morbi vasorum, pneumonia, emphysema, bronchiectasia, cirrhosis hepatis, the hepar albuminosum, and the diseases of the peritoneum and mesenteric glands are, either in whole or in part, displayed in a manner at once accurate and artistic. In the text appended, we think that the aims of the writer, within their distinctly indicated limits, have been adequately attained. Our readers will thus perceive that the work is one which, upon the whole, we can conscientiously recommend to their approval.

We need scarcely add, that Professor Bock is already favourably and extensively known, through other highly judicious and useful publications. In the most recent of these, which is also now lying before us, we possess a valuable compendium of all the most approved means of diagnosis, in the most varied and extended sense of the term.[1] If we can confidently commend it to the student for the copiousness, variety, accuracy, and honesty of its rules and illustrations, it must be with the reservation and warning, that the author leans too strongly towards what some have distinctively constituted as the rational or physiological system of medicine; which, while with them it inculcates warmly a reliance upon nature, limits too arbitrarily what nature is. He may derive a beneficial lesson, however, from contrasting the quiescence of the partisans of this system, with the astounding energy, with drug and instrument, of another class of practitioners, whose zeal, even in the midst of failures, seems conscious only of successes, and whose patients, generally a numerous class, for officiousness easily passes muster with the many for efficiency, show themselves endowed with a faith which, we fear, leads them not rarely to be elevated into martyrs.

HINTS TO STUDENTS

ON THE PROSECUTION OF THEIR STUDIES:

Being Extracts from an Address delivered at Surgeons' Hall, Edinburgh, at the Commencement of the Winter Session 1854. By JAMES SPENCE, Esq., Surgeon to the Royal Infirmary, and Lecturer on Surgery, Edinburgh.

THE commencement of professional study is a serious epoch; it marks the period, when preliminary education completed, the youth begins to take upon himself the responsibilities, and enter upon the real business of life. You may well pause then, and count the cost, and brace yourselves for the struggle, ere you enter on the arena.

From what I have seen, I have little hesitation in affirming that, as a general rule, the conduct of the first session will, in a great measure, determine the future success of the student. The most arduous step in the acquisition of any science consists in mastering its rudimentary parts: when that is once accomplished, the student soon takes an interest in it; every step in advance facilitates his farther progress, until at length the difficulties of the more abstruse parts of it, instead of deterring, only stimulate to a willing labour. . . . . . Hence you observe the necessity of an earnest beginning of your work—a firm determination to grapple with and overcome difficulties, and to proportion your work to your time, by habits of promptitude and methodical arrangement. I have said, "*proportion your work to your time;*" and, if you duly reflect on the value of time—the rapid, yet almost imperceptible manner in which it passes away—the necessity for promptitude of action and avoiding procrastination will be at once apparent. I know this is a trite subject of discourse; but it is so intensely true, and yet so often practically lost sight of, that it must needs be repeated ever and anon.

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[1] Lehrbuch der Diagnostik mit Rücksicht auf Pathologie und Therapie. Leipzig, 1853, pp. 624.

Aversion to labour is so inherent to human nature, that the tendency is always strong to take present ease, with the delusive promise of overtaking our work by future exertions, forgetting that, by so yielding, the evil habit is gaining a surer mastery over us, and that, before we can arouse us from the spell, the best time for work may have passed away. This temptation is specially strong at the commencement of your career. The first stage in your professional life extends from its commencement to the date of the examination, which is so far to test your acquirements, and to confer a license to practise your profession. I do not speak here of your success in passing, as being your only or principal aim in study; far from it; I merely speak of it as a landmark in your career, and as one to which, in the first instance, you naturally and very properly look forward with anxiety. Well, the period allotted for your preparation is four years—a long time in prospect: and so you think, "I can spare a little time; I need not work so very hard just yet; besides, I'll study it more easily by and bye. What's the use of studying anatomy or chemistry from lectures and books? I have to attend the practical classes again in the summer-session; yes, I'll study very hard in the summer!" And the summer comes, but botany and natural history are superadded to the anatomy and chemistry, and if study was felt difficult before, it is doubly so now, when the season itself seems to tempt to indolence. And then, as there are still three years, the neglected studies are deferred to that ever-receding period—"some more convenient season." Now, I think such errors would scarcely be committed, did the student proportion his work and time; in other words, did he only, at the beginning, plan and arrange, in a tabular form, his required course of study, because, having done so, a glance would suffice to show him that, whilst, in the first winter-session, he had only two subjects to study, and ample time for dissection, in the second winter his time would be occupied by attendance on lectures, hospital, and dissection, from 9 till 5, requiring proportionate study in the evening, and so on increasingly. When you think, then, of the long period of four years for preparation, consider at the same time how much you have to do in it.

Another point of importance, at the commencement of studies, is to consider well the relations of the different branches of the medical and collateral sciences to each other, with the view that each be studied in its proper place, so that every step may tell upon the next. Thus, for example, by devoting your attention to Anatomy, Chemistry, and Botany during your first year, you are prepared to follow with advantage the courses of Materia Medica, Physiology, and Surgery in the second winter-session; whilst if, as is not unfrequently done, the student does not continue his studies during the first summer-session, and so omits the study of botany at that period, he can scarcely reap the same advantage from the course of materia medica the next winter as one who has. Indeed, I hold that the first summer-session is a period of great value, if properly employed in attending botany, practical chemistry, and comparative and practical anatomy, in laying a thorough foundation for the more strictly medical subjects which are to follow. By non-attendance at that period, the student not only loses these direct advantages, but, perhaps, is even more seriously injured by the breaking up of the habits of study he had begun to form.

It is important that, ere the student enters on his strictly professional duties, he should have fully completed that course of education in classical and general knowledge, which is so requisite in every learned profession. His mind, thus cultivated, will be better prepared for receiving and reasoning upon the doctrines of that science, which is to form the business of his after-life; he will have acquired habits of study and reflection, and have attained an age at which he will be better able to appreciate the value of time, and the importance of the studies on which he has entered, and thus to discriminate between that mere application of the memory, without mental reflection, by which he may attain a kind of knowledge to enable him to pass an examination; and that thorough knowledge and mastery of his subject, the result of thoughtful study and observation, which can alone be serviceable to him in the active duties of his profession.

As to his professional studies, the student of medicine ought to be fully impressed from the first with the idea, that he must study his profession both theoretically and practically as a whole, and beware of underrating any branch of it. The first subjects which should occupy his attention are, as we have seen, anatomy and physiology; and, to understand the latter, he must acquaint himself with chemistry, and those collateral sciences which facilitate the explanation of most of the important phenomena of life.

To anatomy, as forming the basis of all medical and surgical knowledge, the student ought earnestly to devote his attention from the first, by careful study and actual dissection; and, if he wishes to practise surgery with success, he must be prepared, not only to keep up, but to be advancing his knowledge of anatomy throughout life.

To the student of medicine, anatomy and physiology, besides their own intrinsic interest in a scientific point of view, possess claims of a special nature, as means to the great end he has in view; and, therefore, he should early habituate himself to apply the knowledge of the facts he has learned to the elucidation of pathology, and as they bear upon the treatment of diseases and injuries, or the performance of surgical operations.

Having gained a knowledge of these, the student is prepared to commence the study of the principles of medicine and surgery, which have for their object the consideration and treatment of the alterations in structures, functions, and relations of those organs of the human body which he has studied, in their healthy state.

Whilst attending lectures, it is well that the student should confine himself, in some measure, to one or two of the best modern authors as his text-books. Let him neither attempt too much at first, nor delay till the lecturer is more advanced, but begin with him, read over every evening, in a general manner, the subject indicated for the next day's lecture, so as to be somewhat prepared to follow it. Then let him study it more carefully after he has heard it lectured on, and whilst the illustrations of the lecturer are fresh in his mind. By this plan, his studies and the lectures will synchronize, and his progress will be comparatively easy.

Let him then seek to perfect himself by diligent attention to hospital practice and clinical instruction, for it is from these latter that he must learn the true value of the principles he has been taught, by seeing them applied to practice, by noting the exceptions to general rules, and witnessing the ever-varying phases of disease, which no system of medicine can ever teach.

Having so far acquainted himself with the principles and the practice of medicine, the student must cease to be the follower of one master, or of one system; his duty and his interest alike call upon him to follow teachers whose principles and practice seem opposed, in many respects, to those which he has hitherto adopted. He ought to follow *them* also, observe their practice, reflect on and compare their principles of treatment with those of his former teachers: thus his judgment will be strengthened, his ideas expanded; he will have learned what is sound in principle in each system, and will be less closely wedded to what is doubtful in either. In doing this, the student must necessarily examine controversial subjects to arrive at truth, but he should be very cautious as to the spirit in which he engages in it. Is it a simple and sincere desire to arrive at just conclusions as to some important point, and do you dispassionately proceed to sift the evidence, and satisfy your mind it is right and proper to do so? Do the flashes of intellect elicited in the contest, the masterly powers of debate exhibited in a struggle for victory, rather than truth, excite your interest and admiration?—Beware, for you are treading on dangerous ground!

Or is it the mere love of mischief or amusement, at seeing the displays of temper, and the weak points of character, too often exhibited in professional controversies? Do you subscribe to the confession of a clever writer of the last century:—

"I own I enjoy vast delight in the folly of mankind; and, God be praised, that is an inexhaustible source of entertainment?" If so, how emphatically you would proclaim your own folly by such a course!

The student must also cultivate an acquaintance with the past history of his profession; for it is absolutely necessary to know what has been done in any science, if we wish to advance securely, without the risk of reproducing as new what has been already done, or if we wish to be able to judge of the previous causes of failure in plans of treatment, which have again been revived, with a better prospect of success. I know there are some who sneer at this as a waste of time, as they are pleased to call it, as merely gratifying curiosity, and who self-complacently ask what use there is in studying the works of men who, in many respects, were behind the merest tyro of modern times. "Just so" (says Mr Macaulay, speaking of such feeling), "we have heard a baby, mounted on the shoulders of his father, cry out, 'How much taller I am than papa!' Such persons can never want matter for pride, if they find it so easily, for they may boast an indisputable superiority to the greatest men of all past ages. We submit, however, that this is not the way in which men are to be estimated. We submit that Caxton's press in Westminster Abbey, rude as it is, ought to be looked at with quite as much respect as the best constructed machinery that ever, in our time, impressed the clearest type on the finest paper. Sydenham first discovered that the cool regimen succeeded best in cases of small-pox. By this discovery he saved the lives of hundreds of thousands; and we venerate his memory for it, though he never heard of inoculation. Lady Mary Montague brought inoculation into use; and we respect her for it, though she never heard of vaccination. Jenner introduced vaccination; we admire him for it, and we shall continue to admire him for it, although some still safer and more agreeable preservative should be discovered. It is thus that we ought to judge of the events and the men of other times. They were behind us; it could not be otherwise. But the question with respect to them is not where they were, but which way they were going. Were their faces set in the right or in the wrong direction? Were they in the front or in the rear of their generation? Did they exert themselves to help onward the great movement of the human race or to stop it? This is not charity, but simple justice and common sense. It is the fundamental law of the world in which we live that truth shall grow, 'first the blade, then the ear, after that the full corn in the ear.'" Besides the respect due to them as the pioneers of science, there is much valuable practical information to be gained from the study of the older medical authors. Less dogmatic than the writers of modern systems, they detail their cases with all their felt difficulties and doubts; and, in their process of reasoning upon these, they carry their readers along with them; so that the student who considers them now, with all the aids of modern science to enlighten what was obscure to them, may, from the history of the past, reap many a useful lesson, and learn to avoid many a specious proposal, fraught with dangerous error.

Throughout your course of study, cultivate habits of close self-inspection and self-interrogation. Test well your actual progress from time to time, daily if possible, and let not the question be, What resolutions or good intentions have I formed? what brilliant anticipations cherished? what comprehensive schemes of future usefulness have I planned? but simply this, What new acquirements have I added to my previous stock of knowledge? what advance have I made in my profession? what have I actually done? In the present day, you possess great advantages for the study of medicine. The facilities which now exist for becoming thoroughly acquainted with practical anatomy, can be best appreciated by those who, like myself, can recollect the difficulties which existed prior to the passing of the act legalizing dissection. Whilst the improvements made in the various methods of physical diagnosis; the advances recently made, and still making, in organic chemistry; the applications of that science, and also the use of the microscope, to the study of structural anatomy, and to the investigation of disease, hold out a prospect of a sounder pathology, and, consequently, a firmer basis on which to found our treatment.

But, remember, such advantages have their corresponding responsibilities, and that they open up fresh fields of usefulness, which we look to you to cultivate, in such a manner, that you may advance the dignity of our common profession, by the benefits you confer on society. . . . . . .

And now, I have spoken of a long, laborious course of study, of a necessity for persevering industry; and you may ask me, What are the incentives to exertion? what is our reward from that society which our labours benefit? When we search the records of history, seldom, or only incidentally, do we ever find the names, even of the most eminent of our profession, recorded there. Is it the lot of medical men alone to be forgotten, when their work is done? The remark has often been made, that the medical man, however famed, is only known, during his own times, to his own class; and, to a certain extent, this is true; and, if your ambition be to become the denizen of general history, I fear medicine holds out but little hope of such distinction. But you will do well to recollect that every service has its own appropriate rewards; and the apparent injustice complained of is more a natural consequence of the objects of history, than any slight on our profession. The historian seeks for the prominent causes which influence events, and, consequently, his attention is directed to those who, from their position in society, and their political or moral influence on the masses of mankind, have given a direction to events, or impressed a character on the age in which they lived. And, as the duties of the medical man withdraw him, for the most part, from the arena of political agitation and public life, and confine him to the scenes of sickness, suffering, and decay, those every-day details in the great picture of human life, of which general history recks not, the historian seems to pass him by. But, nevertheless, his services pass not unrewarded. They are of a personal and private kind, and not soon forgotten by those who have experienced them; and bad as the world may be, the medical man who does his duty faithfully and well, though, like others, he may occasionally meet with ingratitude and disappointment, is in general regarded with a degree of esteem and respect, such as is scarcely ever accorded to any other profession.

And, seek a higher motive still. Mere love of science, an honourable ambition to excel, or the desire of the approbation of those we respect and love, may prompt to large effort and exertion; but each or all of these are liable to fail us, for the springs in which they arise are liable to be dried up. When we see those who gave high promise of excellence in their profession cut off, just as bright prospects of future success and distinction were opening up before them, we are apt to pause from effort, and to ask, what is the use of all this labour, when life is so uncertain? When difficulties and disappointments beset our path; or, when those, whose approbation had served to stimulate our exertions are removed, a feeling of despondency might lead us to give up the struggle. But the man whose motives of action arise from a higher source, and who looks beyond the present, though he may feel these things keenly, is preserved from yielding, by a sense of duty, knowing that his times are in God's hand. He does the work assigned him with all his might, as in God's service, and leaves the result to Him. It has been well said, that "no science is complete that does not include the knowledge of the living God;" and experience proves that, when that is wanting, no amount of worldly success can ever fill the void. One of the most eminent philosophers of modern times, whose whole career was one series of brilliant discoveries and success, has himself told us—"I envy no quality of mind or intellect in others—not genius, power, wit, or fancy; but, if I could choose what would be most delightful, and I believe most useful to me, I should prefer a firm religious belief to every other blessing; for it makes life a discipline of goodness, creates new hopes when all earthly hopes vanish, and throws over the decay, the destruction of existence, the most gorgeous of all lights, calling up the most delightful visions where the sensualist and sceptic view only gloom, decay, and annihilation."

In such a belief alone, Gentlemen, can you find an abiding motive; one which will impart alike an interest to the commonest duties of life, and sustain you under every difficulty, discouragement, and trial.

COURSE OF STUDY REQUIRED BY THE VARIOUS BOARDS OF THE UNITED KINGDOM.

	Age.	Anatomy.	Physiology, or Institutes of Medicine.	Demonstrations.	Dissections.	Surgery.	Practice of Physic.	Chemistry.	Practical Chemistry.	Materia Medica.	Medical Jurisprudence.	Midwifery.	Natural Philosophy.	Botany.	Natural History.	Practical Pharmacy.	Pathology, or Morbid Anatomy.	Surgical Hospital.	Clinical Surgery.	Medical Hospital.	Clinical Medicine.	Midwifery Hospital.
	Years.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.	Mons.
Edinburgh University, M.D., - -	21	6	6	6	6	6	6	6		6	3	6		3		6	6		3	12	6	
University of Glasgow, - - -	21	6	6	6	6	6	6	6	3	6	3	6		3				24	24	24	24	
University & King's Col., Aberdeen,	21	12	6	6	6	6	6	6	3	6	3	6		3		3		24	3	24	6	
Marischal Col. & Univ., Aberdeen,	21	6	6	6	6	6	6	6	3	6	3	6		3		6		18	3	18	6	
University of St Andrews, - -	21	12	6	12	12	6	6	6	3	3		3						24	6	24	6	
London University M.B., 1st, - -	19	6	6	9	9	6	6	6	1 crs	1 crs				6		1 crs.						
” ” 2d, - -	21				6						1 crs	1 crs						12	12	12	12	
Dublin University M.B., - -		6	6	6	6	6	6	6	3 ms	6	3	6		3							9	
” ” Surgical Diploma,		18	18	18	18	18	6	6	3	6	3	6		3				27	27	27	27	
The Queen's Univer. of Ireland, 1st,		6	6	6	6			6	3	6				6				6	6	6	6	
” ” ” 2d,		6	6	6	6	6	6				3	6				3 mos.		18	18	18		3
Royal Col. of Physicians, Edinburgh,	Graduates of British Universities admitted by ballot; if of Foreign Universities, they are examined.																					
Royal Col. of Physicians, London,	26	6	6			6	6			3	3	6		3			6			36	36	
King & Queen's Col. of Phys., Ireland,		6	6	6	6	6	6	6	3	6	3	6		3				24	24	6	6	6
Royal Col. of Surgeons, Edinburgh,		12	6	12	12	12	6	6	3	6	3	3				6		21	6	21	6	
Faculty of Phys. and Sur., Glasgow,	21	12	6	12	12	12	6	6	3	6	6	6		3		6		21	6	21	6	
Royal Col. of Surgeons, London, -	21	18	18	18	18	12	6	6		3		3				6		3 win. 2 sum.		1 win. 1 sum.		To be attnd.
Royal Col. of Surgeons, Dublin, -		18	18	18	18	18	6	6	3	3	3	3						27	27	27	27	
Apothecaries' Hall, England, - -	21	12	12	12	12		6	6	3	3	3	6		3		Appr.				18		To be attnd.
” ” Ireland, - -		6	6	6	6	6	6	6	3	6	3	6		3		Appr.		18	18	18	18	30 cas.
Army Medical Board, - - -	21-25	24		12	12	12	12	12	6	3		6	6	3	3	3 mos.		18	8	18	8	
Navy Medical Board, - - -	20-26	12		12	12	18	18	3	3	6		6		3		6		18	6	18	6	Certif. of cas.
E. I. Company Medical Service, -	22-28						12					1 crs									6	6 cas.

Information respecting exceptions to these regulations under various circumstances, and other details as to the order in which, according to some Licensing Bodies, the courses should be taken out, etc., must be obtained by consulting the published Charts of the Colleges, etc.

WINTER

	Anatomy, Systematic and Practical, with Demonstrations.*	Institutes of Medicine, or Physiology.†	Chemistry, and Practical Chemistry.	Materia Medica and Therapeutics.	Practice of Physic.
University of Edinburgh.	Professor Goodsir.	Dr Bennett.	Dr Gregory.	Dr Christison.	Dr Laycock.
Ex. Academical Lecturers, Edinburgh.	Dr Struthers.	Dr Sanders.	Dr Macadam.	Dr Maclagan.	Dr Wood.‡ Dr Gairdner.‡
University of Glasgow.	Dr A. Thomson.	Dr A. Buchanan.	Dr T. Anderson.	Dr Easton.	Dr M'Farlane.
Anderson's Uni., Glasgow.	Dr M. S. Buchanan.	Dr E. Watson.	Dr Penny.	Dr Morton.	Dr A. Anderson.
Marischal Coll. & Un., Aberd.	Prof. Lizars.	Dr Ogilvie.	Dr Clark.	Dr Henderson.	Dr Macrobin.
Un. & King's Coll., Aberd.	Dr Redfern.	Dr Christie.	Dr Fyfe.	Dr Rattray.	Dr Jos. Williamson.
University of St Andrews.		Dr Day.	Professor Connell.		

SUMMER

	Practical Anatomy and Demonstrations	Comparative Anatomy.	Histology.	Practical Chemistry.	Midwifery.
University of Edinburgh.	Professor Goodsir.	Professor Goodsir.	Dr Bennett.	Dr Gregory.	
Ex. Academical Lecturers, Edinburgh.	Dr Struthers.			Dr Macadam.	Dr Keiller.‡ Dr Duncan.‡
University of Glasgow.	Dr A. Thomson.		Dr A. Thomson.	Dr T. Anderson.	
Anderson's Uni., Glasgow.	Dr M. S. Buchanan.			Dr Penny.	Dr Paterson.
Marischal Coll. & Un., Aberd.	Professor Lizars.		Dr Ogilvie.	Dr Clark.	
Un. & King's Coll., Aberd.	Dr Redfern.		Dr Redfern.	Dr Fyfe.	

* Demonstrators are advertised in conjunction with the Anatomical Teachers, but in Scotland
to sign certificates in conjunction with the Lecturer on Anatomy to qualify for attendance
† This course is equivalent to that given under the name of general anatomy and physiology in
demonstrations, and one course of the institutes in Scotland, as equivalent to attendance on three
are issued by the London Boards for Scotch students in consequence, which should always be
‡ These are not conjoint courses, but separate ones by the gentlemen named.

We this month present our usual tabular and other information regarding the Scotch Medical Schools. Wherever returns have been made, they have been carefully taken advantage of, and therefore, every reliance may be placed on the accuracy of our lists. To those gentlemen connected with the different Medical Schools and Institutions who have responded to our application for information, we have to return our best thanks; and if we shall be fortunate enough to secure their co-operation in the plans which we contemplate for the *Students' Number* of our Journal in future years, we are satisfied that benefit will result both to Schools and Students.

Next year we propose to publish the Student's Number in October, instead of November, as hitherto; and, the matter connected with the teaching of medicine, which has hitherto been scattered over the whole year, will in future be, as far as practicable, concentrated in one number,—an arrangement which will be con-

SESSION.

Surgery.	Midwifery.	Natural Philosophy.	Natural History.	General Pathology.	Clinical Medicine.	Clinical Surgery.
Prof. Miller.	Dr Simpson.	Professor Forbes.	Professor Allman.	Dr Henderson.	Drs Christison, Bennett, & Laycock.	Professor Syme.
Mr Spence. Mr Lister.		Mr Lees.		Dr Haldane.	Drs Keiller, Gairdner, & W. Begbie.	Dr Dunsmure.
Dr Lawrie.	Dr Pagan.	Prof. W. Thomson.	Dr Wm. Couper.			
Dr Hunter.	Dr Paterson.	Dr Taylor.				
Prof. Pirrie.	Dr Dyce.	Professor Gray.	Professor Nicol.		Dr Kilgour.	Dr Keith.
Dr Kerr.	Dr Rainy.	Professor Thomson.				
		Professor Fischer.	Dr M'Donald.			

SESSION.

Botany.	Medical Jurisprudence.	Natural Philosophy.	Natural History.	Clinical Medicine.	Clinical Surgery.
Dr Balfour.	Dr Traill.		Professor Allman.	Drs Bennett and Laycock.‖	Prof. Syme.
	Dr Littlejohn.	Mr Lees.		Drs Keiller, Gairdner, and Begbie.	Dr Dunsmure.
Dr W. Arnott.	Dr Rainy.				
Dr Bell.	Dr Crawford.				
Dr Beveridge.	Dr Ogston.			Dr Kilgour.	Dr Keith.
Rev. T. C. Brown.	Dr Reid.		Rev. Mr Longmuir.		

their functions are only to assist in the practical anatomy classes, and they are not authorised on anatomy and physiology.

the English schools. The London Boards, however, consider two courses of anatomy with courses each of anatomy and of general anatomy and physiology, in England. Special schedules inquired for.

‖ This is a joint course.

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venient both for the general reader as well as for the Student. Thus, the Graduation Address in the University of Edinburgh, delivered in August, will be reserved for this number, and any other addresses either in that University, or in the Extra School, or in any other of the Medical Schools in Glasgow, Aberdeen, or St Andrews, that have a general bearing on Student life, will in like manner be made available. It is also intended that complete lists of parties receiving degrees and diplomas at all the Schools in Scotland, will be inserted.

Our readers need not be told, that in the London Journals the lists of the Scotch Schools are meagrely and inaccurately given, and, we therefore trust, that our attempt to remedy a felt defect, will meet with the countenance of those parties, without whose aid it will be difficult for us to carry our design into full effect.

NOMINA EORUM QUI GRADUM MEDICINAE DOCTORIS IN ACADEMIA JACOBINI SEXTI REGIS, QUÆ EDINBURGI EST, ANNO MDCCCLV ADEPTI SUNT.

**** Those who have obtained Prizes for their Dissertations. ** Those selected for Competition for the Dissertation Prizes. * Those commended for their Dissertation.*

* Badre, Mahomed, Ægyptius. — On Purulent Ophthalmia. * Beaugeard, Franciscus, Onesipho, ex Insula Mauritii.—On the connection between some Diseases of the Liver and the Intestines. * Bell, Georgius Coates, ex India Orientali.—On Tobacco. *** Blackie, Georgius Stodart, Scotus.—On Cretinism. 5. *** Bryden, Jacobus, Lumsdaine, Scotus.—On Sugar in the Economy in Health and Disease. Campbell, Dugaldus, ex India Orientali. —On Anæsthesia. Charles, Thomas Edmonston, ex India Orentali.—On the Causes and Treatment of Sterility. * Cruickshank, Joannes, Scotus. — On Functional Disorders of the Stomach. ** Dauglish, Joannes, Anglus.—On the proximate Causes of Inflammation. 10. Dempster, Joannes Jacobus Colquhoun, ex India Orientali.—On Organic Stricture of the Urethra. Drysdale, Georgius, Scotus.—On Animal Chemistry. Elliot, Agustus Fredericus, Anglus.—On Atrophy. * Fleming, Jacobus Boyd, Scotus. — On Dysentery. ** Forbes Gulielmus Welsh, Scotus.—On Asiatic Cholera. 15. Fraser, Jacobus, Scotus. —On Diseases of the Spine. * Fun, Wong, Sinensis.—On Functional Disorders of the Stomach. Geddie, Georgius, Scotus. — On Purpura Hæmorrhagica. Gilfillan, Gulielmus, Hibernus. — On Dropsy. Grant, Georgius, Scotus. — On Mental Influences as producing and removing Abnormal Conditions of Body. 20. Grant, Maximilianus, Hibernus.—On Aneurism and its Varieties. Henderson, Joannes, Scotus.—On the Hereditary Transmission of Disease. Hinchcliff, Gulielmus Horsfall, Anglus. — On the Formation of Abscess in the vicinity of Mucous Canals. *** Hodgson, Decimus Filius de, Anglus.—On the Anatomy and Diseases of the Prostate. * Hughes, Gulielmus Lewis Owen, Anglus.—Notes from different Authors on the Kidney and Albuminuria. 25. Hutchinson, Benjamin Clay, Anglus. — On Scurvy. * Ireland, Gulielmus Wotherspoon, Scotus.—On Fœticide. Jones, Carolus Blackburn, Canadensis.—On Simple or Lobar Pneumonia. Katib, Mahomed Ali, Ægyptus.—On the Climate of Egypt. Lawrence, Georgius, Scotus.—On some of the more important points connected with the Surgery of the Arteries. 30. ** Marshall, Gulielmus Johnstone, Scotus.—On the Modes of Dying. Marshall, Henricus, Scotus.—On Amputation. Moore, Arthurus Gulielmus, Canadensis.—On Continued Fever. Mostapha, Mostapha, Ægyptius.—On Medical Study and its Philosophy; and on the Uses and Effects of Indian Hemp in Egypt. Ogilvie, Carolus Fredericus, Anglus.—On the Appearance of the Gums in Phthisis Pulmonalis. 35. Reid, Henricus Robertus, Anglus. — On Tetanus. Roberts, Gulielmus Howland, ex India Orientali.—On Hæmorrhagic Discharges from the Pelvic Passages. Robertson, Carolus, Scotus. — On Epidemic Cholera. * Robertson, Joannes Robertus, Anglus.—On Scarlatina. Ross, Hamilton M'Eilheron, Hibernus.—On Tuberculosis. 40. * Savage, Thomas Young, Canadensis. — On Ovarian Dropsy. * Seward, Georgius Edwinus, Anglus.—A Plea for the Cephalotribe. ** Seymour, Almeric Gualterus, Anglus.—On the Absence of the Chlorides from the Urine during Inflammatory Diseases. Slight, Georgius, Scotus.— On Variola. * Smith, David Boyes, ex India Orientali.—On Injuries of the Head. 45. Smith, Joannes, Scotus.—On the Functions of the Skin. Somerville, David Hope, Scotus.—On the Pathology of Obstructed Circulation. Soubki, Mahomed Ali, Ægyptius.— On Malaria and Intermittent Fevers. Soutar, Robertus Ker, Scotus. — On Ophthalmia. Tait, Georgius, Scotus. — On General Dropsy. 50. Taylor, Gulielmus, Cambro-Britannus.—On Narcotics. Thorburn, Jacobus, Canadensis. — On Dysentery. * Thorburn, Joannes, Anglus.—On Surgical Fever. Turnbull, Georgius Wardlaw, Scotus.—On the Histology of the Simpler Tissues, with special relation to their Formative Capacity. 54. ** Wise, Jacobus, ex India Orientali.—On Lycium.

Part Third.

MEDICAL NEWS.

THE MONTH.

Dr Laycock of York has been appointed by the Town Council of Edinburgh to the vacant chair of the Practice of Physic in the University of Edinburgh. It will be seen from our report of the proceedings of the Council, that all the candidates retired prior to the day of election, except Professor Bennett, Dr Laycock, and Dr Wood. The first vote stood—Dr Laycock, 12; Dr Wood, 12; Dr Bennett, 9. The second division stood—Dr Laycock, 17; Dr Wood, 15. The contest was throughout keenly maintained, but the excitement may now be considered as having subsided; and there can be no doubt that the University, the profession, and the public, will receive the new professor in a manner worthy of his reputation as a writer, and as a teacher and practitioner of medicine. He is to be inducted, along with Drs Allman and Wilson, on the 5th inst. It will be seen, that the three new professors are from the three nations—a satisfactory proof that neither the crown nor the municipal board will be influenced in their patronage by mere local considerations.

While changes are thus taking place in the University, new names also appear amongst the teachers in the Extra-Academical School. Thus, we have Mr Lister announced for Surgery, Dr Macadam for Chemistry, and Dr Sanders for Physiology. Drs Keiller, W. T. Gairdner, and Dr W. Begbie, commence a new Clinique; Dr Haldane changes his course from Medical Jurisprudence to General Pathology, and is to be succeeded in the former course by Dr Littlejohn.

In Glasgow University, Dr Easton has obtained the Chair of Materia Medica, while Dr Morton succeeds to his vacancy in Anderson's Institution. In King's College, Aberdeen, Dr Rattray succeeds Dr Templeton, in Materia Medica; and in Marischal College, Dr Ogilvie is announced for Histology, and Dr Beveridge for Botany. There is thus every appearance of an active academic season in Scotland, and, we trust that, while there will be a generous competition among the rival schools, there will, on all hands, be a discountenancing of those petty jealousies and feuds, which never fail to damage the profession of medicine in the long run.

Amongst the many anomalies with which our constitutional system abounds, is that of our cabinet ministers seeing things with the eye optical, which that greater organ the eye-official does not discern. Thus, the assistant-surgeons in the Crimea lately drew up a memorial of their grievances to Lord Panmure, to which we largely adverted last month, but which has not yet officially reached its destination. They sent home copies to their friends and to the newspapers; the medical journals reprinted it, with approving commentaries; and the general press reprinted it, with at least no dissentient deliverance. The minister of war sees it in the *Times*, which his lordship reads, of course, in common with everybody—he sees it in the ministerial *Globe*, and in the opposition *Press*—when he turns to the *Inverness Courier* for intelligence from the moors, or to the *Brechin Advertiser* for the accidents and offences of his native district, he finds the assistant surgeons and their memorial, turning up at every corner. His lordship peruses it mayhap, but observe that officially his lordship has not to this hour seen, read, heard, or received the document, and this for the plain reason that, although addressed to Lord Panmure, the writers did not send it to *him*. How comes this? There was surely, if not a royal, at least a patent road from the Crimea to Downing Street, and if the existence of the post-office had but occurred to the memorialists, it is tolerably certain that the all-important mission would have reached its destination, and coming in contact with the mystic tape of the executive, an answer of some kind or other would as certainly have been vouchsafed. Why then indirect transmission was made available, and why direct transmission to Lord Panmure was timorously avoided, we cannot divine. According to the proverb, one of the humblest of the domestic animals may look at the sovereign, and surely the medical department of the army might, on an emergency, summon up a sufficient modicum of courage to approach the footstool of a reforming and really liberal war minister. Let us see to what a result the simple policy of the assistant-surgeons has led. A contemporary informs us that the memorial "was originally forwarded to Dr Hall and to General Simpson, and by these transmitted to Lord Panmure, to whom it was addressed; but whether from misdirection, or from some other cause *which we are unable to explain*, it appears that that nobleman has never received it at all, for Dr Andrew Smith sends it back to Dr Hall, with a letter, in which the former physician declines to present the document to the war minister." Instead of taking up the refrain of astonishment here expressed, we maintain that there never was a case more thoroughly free from mystery—the why and because Lord Panmure did not officially receive "the document," humbly occurs to us to be as clear as a sunbeam. Let our readers peruse the following letter of Dr Andrew Smith to Dr Hall, and then judge for themselves :—

"Army and Ordnance Medical Department, Aug. 17.

"Sir,—I have the honour to acknowledge the receipt of your letter, dated the 31st ultimo, forwarding for my consideration and transmission to the Minister-at-War a memorial from certain assistant-surgeons of the army serving in the Crimea, praying for an amelioration of their condition, and certain advantages in point of merit and retirement.

"In returning the enclosure I regret to have to inform you that it is not in my power to forward it for the consideration of Lord Panmure, as it contains at least one statement which I do not admit to be correct. The statement is as follows :—

"'That promotion appears at the present time to be conducted on no definite plan, and is not regulated, as it should be, by considerations of merit, seniority, or service in the field.'

"Independently of this reason, I also consider the document one I could not with propriety forward to Lord Panmure, as it purports to be suggestions for the improvement of the department simply by a body of assistant-surgeons, by far the majority of whom can scarcely be supposed yet to thoroughly know the working of the present system, or what would be the effect of what they propose.—I have, etc.

Andrew Smith, *Director-General.*

"Dr Hall, Principal Medical Officer,
"British Army, Crimea."

The memorial was sent to Dr Smith for "*his consideration* and transmission to the minister-at-war." If, therefore, Dr Smith, rightly or wrongly, considered that it contained "statements which he did not admit to be correct," he was perfectly justified in declining to present it. The memorialists virtually placed their approach to the war minister at the discretion of the director-general of the medical department. He forbade that approach; and, therefore, the memorialists put themselves out of court by their own act. So far, then, from the transaction being one of mystery, the only mystery is why the parties concerned, actors and commentators, did not foresee the very probable issue of the line of procedure that was adopted. It may possibly be said that Lord Panmure might have taken up the case of the assistant-surgeons simply from the newspaper copy of their missive, but let it be considered that his lordship's time must already be more than sufficiently occupied with papers that come before him in the usual way of business; and that, moreover, there was positive discourtesy in publishing in the newspapers a communication addressed to his lordship before waiting to ascertain if Dr Smith would sanction its delivery in its original shape. It appears to us that if the director-general had presented it, that circumstance would have been a tacit condemnation of himself, and that he personally took this view is evident, from the quotation made from the memorial. Possibly Dr Smith is not without solid grounds of objection; for the propriety of one, at least, of the points urged by the assistant-surgeons has been questioned by a "staff surgeon" at Scutari, who protests "against their request, that service in the Crimea should count for three times more than service in the hospitals on the Bosphorus; as, of the whole body of medical officers, a large number must be attached to the general hospitals, who, consequently, have no choice in the matter." The "staff-surgeon" suggests that "a roster [*i. e.*, a list of officials and their turn of duty], should be kept, and regular relief insisted on, so that all should, as equally as possible, have their share of field and hospital work." This hint seems worthy of special consideration.

On the general question we have not much to say. The education and duties of medical officers in the army, fit them for equality of remuneration and privileges with the other members of the service; but in every question of this kind we have to contend with prejudices, obstinate in degree, and of long duration. That same romance of war, which causes a major to attract more attention, in a drawing-room, than a surgeon, is not without its influence in head-quarters, and nothing will counteract this misconception, until, as we plainly stated last month, the profession is true to itself, and its members remain aloof from service until abuses are corrected. So long as vacancies are eagerly filled up, so long will the question of earnest, thorough-going army medical reform be shelved. Let our friends, the assistant-surgeons, state their grievances temperately and distinctly—let them send their remonstrance direct to the highest authority; and if their just complaints are not attended to, the profession should then take up the subject, and if they do so in an honourable and discreet manner, we shall not long have occasion to discuss army grievances.

The memorial in question has formed the occasion for a furious philippic on Dr Smith, by the *Times*, who describes him as one of the most notorious dead-weights of the day, impenetrable alike to reason and to feeling. The thunderer holds that he is one of its most incorrigible victims, and declares roundly that attacks on him are so useless, that they can only be compared to "pommelling a feather-bed." Such violent language defeats its own object. Few of the higher authorities in the war department have been entirely free from blame; but Dr Smith, of all others, came well out of the investigation, and instead of useless animadversion on errors of the past, over which the accused declares that he had no control, and which he avers he did his best to mitigate, Dr Smith should rather be judged by his discharge of current duty, when having, as we presume, the requisite power, he is now also entitled to bear the responsibility of his high office. In contrast with the *Times*, the Medico-Chirurgical Society of Aberdeen, have elected him an honorary member of their body. "We cannot withhold," says the Society, "an expression of the great admiration which we feel of the foresight, judicious arrangement, and thorough acquaintance with the wants of an army in the field, which your letters to the war office exhibit. Had your wise and timely suggestions been attended to, and promptly carried into effect, we feel convinced that many valuable lives might have been saved, and that a great amount of misery to our army in the East would have been prevented; and we feel assured that we express but the general conviction of the profession, and, indeed, of all who have read your letters, when we say that they afford a triumphant refutation of the unjustifiable charges which were at one time made against the department of which you are at the head, and against yourself personally; and that your character for zeal, foresight, and capability, has only been exalted by the attempts made to injure it."

Dr Smith makes a lengthened reply to this complimentary commendation, in which he states:—

"When it was first announced through the public press that the medical arrangements, which had been made for the army in the East, were found defective, and that the medical, surgical, and other supplies, which had been furnished for the use of the sick, had proved insufficient, my immediate feelings were those of alarm and mortification. These, however, were of short duration, as a careful review of what I had recommended and of what I had actually effected, satisfied me that I had no reason, so far as I was informed, to experience either the one or the other. Had that review, however, led to a different conclusion, or had I during the continuance of the outcry, succeeded in discovering any reason to believe that I had, either from neglect or incompetency, or from both, failed to discharge the duties of my appointment in a manner the most conducive to the interests of the public service, I should, without hesitation, have endeavoured to ensure for the department a chief better fitted than myself to direct its operations and provide for its wants. * * *

"I intimated on every favourable occasion, my willingness to meet at once any specific accusation that could be brought against me, provided it were so detailed as to admit of my employing the facts I might possess and felt disposed to use. All such offers, however, whether made directly or indirectly, passed unheeded; and therefore until the Sebastopol Committee was appointed, I saw no prospect of being able to regain what I felt I had, through slander, calumny, and rancorous misrepresentation, most undeservedly lost. * *

"Long before the Committee commenced its labours, nay even before its members were nominated, I took every opportunity of impressing on gentlemen of the House of Commons with whom I was acquainted, my earnest desire to be rigorously questioned in reference to every subject which could fairly be considered within either my own province, or the province of the medical officers serving with the army in the East. The laws of this country regard every person innocent till proved guilty, but my traducers possibly foresaw that so humane and charitable a practice would not answer the object they had in view, and therefore it was not observed in my case. That power, however, which is far superior to any which man can exercise, has befriended the injured, and now my greatest desire is to forget and forgive the ill-treatment I have experienced, and alone hold in grateful recollection the kindly efforts which have been made or are making to restore me what at one time I had, to all appearance, lost."

We are glad to conclude the war summary, with an unmistakeable proof that one deserving case has not passed unrewarded by the war-office. The following communication from Dr Smith's predecessor to the convener of the county of Ross, will speak for itself:—

"Sir James Macgregor, late Director of the Army Medical Department, presents his compliments to Sir James Matheson, and though he has not the honour of a personal acquaintance with him, trusts that the subject of this note, which is almost one of public interest, may be considered an excuse for troubling him.

"A short time since, Sir James Macgregor wrote to Lord Panmure asking a pension for the mother of the late Dr Assistant-Surgeon Thomson, 44th regiment, to which he returned a kind and satisfactory answer. According to the regulations Mr Thomson was not entitled to a pension, but the merit of that officer, in sacrificing his own life, after the battle of the Alma, in the cause of humanity, so far exceeded what the framer of any code of regulations perhaps ever contemplated, that Lord Panmure well and wisely considered this peculiar case a fair ground for deviating from them, and at Sir James Macgregor's request, a pension was granted. Though it was Sir James Macgregor's fortune to give this zealous and talented officer his commission, yet his merit having been most favourably noticed in both Houses of Parliament, it would be superfluous for him to make them here the subject of remark. The Duke of Newcastle and others may have perhaps exhausted words of praise already on this interesting subject. Sir James Macgregor, however, has a natural pride in reflecting that a native of the Highlands of Scotland should have been the subject of these well-earned eulogiums. Buried near the shores of the Black Sea and the plains of the Alma, Surgeon Thomson was born near the Bay of Cromarty, and the object now of this note is to suggest that some monument or record should mark the birth-place of one whose career was alike honourable and useful. If, therefore, Sir James Matheson, who so worthily represents the county in which this officer was born, would only countenance such a project, the writer of this note would cordially give it his humble support.

"3, Harley Street, Cavendish Square,
"London, 12th Sept. 1855."

As might be expected the county meeting has warmly responded to this appeal and a memorial is to be erected in Cromarty. We shall be glad to receive and acknowledge, in the Journal, any contributions for this desirable object, that may be forwarded to us.

We extract from a recent number of a Berwick newspaper, a report of a meeting of the local Board of Guardians in that town, from which it appears that a medical gentleman, possessed of an Edinburgh qualification, and approved of by the Guardians, has been objected to by the Poor-Law Commissioners of England, who refuse to confirm his appointment because he has not the license of the English Apothecaries' Company. The local board seems disposed to object to the interference of the Commissioners, and we trust they will support their nominee. It is now about a dozen years since the Commissioners attempted to shut out Scotch and Irish bred medical men from employment under them, on the ground that they had not the diploma of the English College of Surgeons. In this they were signally defeated, and proved to have acted illegally; and they are now entering the field as champions of the privileges of another English corporate body, which has itself, in a great measure, abandoned prosecutions of *qualified* practitioners, either on account of their odiousness or their expensiveness. The Poor-Law Commissioners mistake their duty. They are bound to see that the men chosen by the local Boards of Guardians have gone through a proper course of education, and have been competently examined by Boards of professional men; but they are by no means called upon to bolster up exclusions which are becoming obsolete, or to become expounders of laws which are not systematically enforced by those who have an interest in their enforcement. They may possibly be as much in error on the present occasion, with regard to the interpretation of the bearings of the Apothecaries' Act of 1812, as they admittedly were, in 1843, in their interpretation of the charter of the London College of Surgeons.

TOWN COUNCIL PROCEEDINGS.

A meeting of Council was held yesterday (October 2d)—the Lord Provost presiding.

THE VACANT MEDICAL CHAIR.

The first business was the election of a Professor of the Practice of Medicine in the University of Edinburgh. The Town Clerk read the following list of candidates for the chair—viz., Professor Bennett, Dr Craigie, Dr Halliday Douglas, Dr W. T. Gairdner; Dr Laycock, of York; Dr M'Cormac, of Belfast; Dr Munro, late of India; and Dr A. Wood.

Dean of Guild Fraser, in withdrawing two of these candidates, said—I have been requested to withdraw from this important and honourable competition the name of one of the candidates—Dr Gairdner, to whom I had from the first given my most earnest and conscientious support, and that wholly and solely from the conviction arrived at by an amount of testimony most thoroughly satisfactory in every point of view. Indeed, I believe that but with one disqualifying exception, his fitness for the office was admitted on all hands, by the Patrons and the Professors alike; that disqualification was his age. It is not necessary, in discharging my present duty, to inquire whether this objection was a valid one or not; but if his youth, or rather his not being an older man than he is, be an objection, I would justify my preference by pointing to the fact that several of our most distinguished Professors were appointed to chairs at an earlier period of life than that of Dr Gairdner. In conclusion, I will venture to predict, what it requires very little prevision to foretell, that although retiring from this competition, Dr Gairdner has before him a bright career of professional eminence, honourable to himself, useful to his fellow-countrymen, and such as will well maintain and extend the fame and glory of his own time-honoured Alma Mater—(applause). In these days of warlike excitement, most of us have been made aware that an honourable retreat is the next best thing to a victory; and, as a sort of leader in this honourable contest—though not an entirely satisfactory mode of placing my men—I have also been requested to withdraw the name of Dr M'Cormac, a gentleman in all respects well entitled to be a competitor on the present occasion, from his great professional eminence, his reputation as a philosophical inquirer, and from his labours as an enlightened philanthropist.

Dr Craigie and Dr Halliday Douglas also withdrew their names from the list of candidates.

The Lord Provost then said—I know that I express your sentiments when I say that we all feel deeply the importance of the duty which we are now called to discharge. We have waited anxiously till we should have an opportunity of weighing the claims of the various candidates, and judging of these by the evidence adduced. Of this I am certain, from my own observation, that none of us has formed a conclusion prematurely, and that the judgment arrived at has not been formed without the most deliberate consideration, and an earnest desire to arrive at a satisfactory result, and that upon exclusively public grounds. On the present occasion, the difficulty of forming an opinion is increased by the fact, that all the candidates now before us are men of great ability and acquirements, any one of whom could perform honourably and creditably the duties of the vacant chair. In forming my own opinion, I have been somewhat influenced by the course followed on previous occasions by our predecessors in office. For more than a century, the almost invariable practice has been, to promote the Professor of the Institutes to the Chair of the Practice of Physic, and the reason of such a course is obvious. A knowledge of the theory is indispensable to the practice, and the one is a necessary preparative to the other—(hear, hear). Whoever cultivates successfully the theory, will most efficiently carry into practice that knowledge without which practice becomes empirical. Accordingly, that great and good man, whose loss to the University we all deeply deplore, at the time when this chair was last vacant, taught the Institutes; and, because he did so successfully, he was transferred to the Chair of the Practice of Physic. This was not a solitary instance, but, on the contrary, it formed a sequel to several—men whose names occupy a conspicuous place in the history of our College. I have requested the Clerk to make up a note of the appointments made to this chair during the last century; and the first to which I beg to call your attention, is that of Dr John Gregory, who does not appear to have previously held a chair, but who was appointed, on the 12th of February 1766, to the Chair of Practice of Medicine. The next was Dr Cullen, who was appointed to that chair on the 17th February 1773, and who occupied the Chair of the Institutes of Medicine, from which he was transferred. The next Professor was the great Dr James Gregory, who held the Chair of the Theory of Medicine, and on 30th December 1789 was elevated to that of the Practice of Medicine. There was next Dr Home, Professor of Materia Medica, who was appointed to the Chair of the Practice of Medicine in 1821. And lastly, we had the case of Dr Alison, to which I have already alluded. Now Dr Bennett, whose name I now beg to propose for the candidate who shall receive your suffrages, has occupied the Chair of the Institutes of Medicine for a space of seven years. He received it by the unanimous vote of the Council; and, for the mode in which he has discharged its duties, I refer to the testimonials which are in your hands. These testimonials are too overwhelming in number for me to attempt even a summary of them. They establish the fact, to my mind, beyond a doubt, that he is a man of original genius, who has contributed largely to the extension and improvement of that science to which he has devoted himself; that his reputation is known and admitted throughout Europe; and that, by his labours and his discoveries, he has sustained and increased the reputation of our School of Medicine—(hear, and cheers). Those who thus think with me, cannot, I submit, decline to admit that we are called on to elevate Dr Bennett to that place of higher dignity which is now in our gift. The high place which Dr Christison holds, as a consulting physician, in the city, is well known to all of us. A very strong desire was felt, and expressed by several members of this Council, that he should receive the offer of the vacant chair. That offer was not made only because it was known that it would not be accepted. His letter is before you, and, in regard to it, I may be permitted to explain that, perplexed as I was, and as I daresay many of you also were, about the course to be adopted on this occasion, I took the liberty of asking his opinion of Dr Bennett's qualifications for the vacant chair. The letter was delivered to me at a meeting here, and I rather think was intended for myself. Amidst the hurry of public business, I showed it to one or two members of Council, and it speedily got into the newspapers. Again, I refer to the testimonial of Dr Alison, whose devotion to the interests of the University we all know and appreciate; but I shall not particularise more, for the task would be endless. One other remark, and I have done. The testimonials refer to Dr Bennett's experience and success as a clinical lecturer, requisites which are also indispensable to a Professor of the Practice of Physic. I have referred to two testimonials only—to the one, because it seemed by some to require that explanation which I have now given; to the other, because it was given by one whom we all revere. The testimonials are supported by a large body of testimony from men of science belonging to almost every part of Europe; such an amount of testimony as is rarely equalled on occasions of importance like the present, the weight of which I have felt so strong as to carry me irresistibly along with it—(cheers).

Bailie Morrison, in seconding the nomination of the Lord Provost, said that, after the very able manner in which his Lordship had referred to the merits of Dr Bennett, he would not further occupy the time of the Council. He would only say, that one objection made to Dr Bennett's appointment to the chair was, that he had not a large private practice. The fact was, that when Dr Bennett became a candidate for his present chair, the objection raised to him was, that he had no theory and too much practice; and it would be found, from the testimonials which he then produced from Dr Christison, Dr Alison, and some of our most eminent physicians, that not only was he acquainted, in a remarkable degree, with the Theory of Medicine, but that he was a good practical medical man, the proof of which was, that for seven years he had delivered clinical lectures to a very large class. Since that time, he had for seven years longer lectured on the Theory of Medicine in the University, and they had it on the testimony of Dr Christison, that no man could be an eminent professor of the practice of physic who had not been a clinical lecturer. Dr Bennett had had that training more than any candidate now before them, and, on that ground alone, he was disposed to give him his support.

Bailie Brown Douglas said, he had great pleasure in proposing Dr Wood, as a gentleman who would fill the chair now vacant with great advantage to the University, and, he believed, to the city of Edinburgh. He did not think it necessary to state at length the reasons which induced him to give the preference to Dr Wood. It might be a very right thing that the Council should take, as an element in filling this chair, the fact that a gentleman had previously been Professor in another chair; but he, for one, would be very careful against committing himself to the idea that, because a man held the Chair of the Institutes of Medicine, he was therefore more competent to be appointed to the Chair of the Practice of Medicine. But, independent of this, he had come to the conclusion that Dr Wood would fill the vacant chair better than the other candidates who had been named. Looking at the testimonials, he was satisfied that a gentleman who could produce upwards of one hundred testimonials of the character which he had produced, was well qualified to fill the chair now at their disposal. Then, he was satisfied, by communication with friends who were able to judge of his merits, that his appointment would give the largest amount of satisfaction, and be very beneficial to the University. There was one great element which they ought to consider in electing a gentleman to fill this chair—he referred to the amount of private practice which he might have. Now, Dr Wood had a very large private practice; and he could not believe that a man who had such a very extensive practice would not be able to teach in the Chair of the Practice of Medicine. Dr Wood, in his testimonials, referred to having at one time taken a very active interest in the affairs of the city. That, of course, gave no claim for an appointment in the University, but, other things being equal, he could not disregard that claim on the part of a fellow-citizen; and therefore it gave him great pleasure to propose the appointment of Dr Wood.

Convener Banks seconded the nomination of Dr Wood.

Treasurer Dickson proposed Dr Laycock—a gentleman who had given ample evidence that he possessed the highest qualifications for the chair. His writings on medical subjects had gained him the friendship and the confidence of all the leading medical names that could be mentioned. In addition to his high professional qualifications, he was a most honourable man, of gentlemanly and conciliatory manners, and of that moral and religious character which was likely to have a beneficial influence on the students attending the University.

Dr Renton, in seconding the nomination of Dr Laycock, read the following from a written paper—It is almost unnecessary to observe that no man is equally qualified to fill every chair; that the different Professors in our University are specially qualified to do honour to their own respective chairs, and that it is the important duty of the Council to select that candidate to a vacant chair who possesses the most pre-eminent claims. The vacancy to be filled up to-day, refers to a chair which has been long considered as "The Chair" in the University, the unmistakeable province of which is to teach the Practice of Physic. I rejoice that Dr Laycock has presented himself as an aspirant for that high office, and I congratulate the Council that he is a stranger, because it affords the best proof of the public confidence which is reposed in the independence of the Council as patrons; and I entertain strong hopes that, by the impartial and enlightened administration of its patronage, it will assert the principle upon which the world-wide reputation of our University is derived, and that it will, on this, as on every important occasion, divest itself of all sinister influences, whether arising from professorial pre-arrangements, party predilections, and local interest, and that its fiat in disposing of this honour will be "*Detur digniori.*" Dr Laycock has stated, in his address to you, that he has been twenty-eight years in the profession, as student and practitioner; that, after studying in London during three winter and two summer sessions at University College, he spent a session at the School of Medicine at Paris; that he received, in 1836, the appointment of resident medical officer to the York County Hospital, which he held for three years; that he afterwards studied a session at the University of Gottingen; that, after visiting the principal hospitals in Germany, he returned to York, where he practised both medicine and surgery until 1842, when he was appointed Physician to the York Dispensary, and was admitted a licentiate *extra urbem* of the Royal College of Physicians of London; that he was elected to the Chair of the Practice of Physic in the York Medical School, an appointment which he now holds; and that, for the last thirteen years, he has had a considerable share in the advancement of public hygiene. I take leave to state that, in connection with these public appointments, upwards of 3000 cases have been attended by Dr Laycock, in the York County Hospital, during his residence there; and that there came under his care, at the York Dispensary, during the thirteen years, about 20,000 cases, as appears from a return furnished by one of the surgeons to the York Dispensary. Dr Laycock has also been clinical and general lecturer on the practice of physic, at the York Medical School, for nine summer and eight winter sessions, and many of his lectures have been published in this country, and republished in Germany, Italy, and France. The subjects of these lectures refer to a domestic clinical, and not an hospital clinical practice, where the patients are visited in their own houses by Dr Laycock and his pupils, and notes taken of the cases to which the prelections refer. This plan has the advantage of presenting the forms which diseases assume in private practice, and the treatment, which the pupils afterwards, as practitioners, are taught to adopt It was among this class of patients, similarly domiciled in the courts and closes of Edinburgh, that Dr Alison laboured so long, and on which he laid the foundation of his reputation as a skilful and experienced practitioner. How far Dr Laycock has availed himself of the same opportunities, for the promotion of medical science, is best attested by the numerous contributions, in the form of essays, reviews, and treatises, amounting to upwards of 150, arranged in the chronological catalogue appended to his testimonials. It is difficult, indeed, to understand how one so actively engaged in such an extensive dispensary, and private practice, as Dr Laycock was, could find time to write on so many important subjects connected with the practice of medicine; and, without the intuitions of genius, and the resources of a cultivated mind, such labours never could have been effected. All his writings have a practical bearing on the duties appertaining to a professor of the practice of medicine. The chief value of his writings consist in being original as well as practical, for they contain those broad and comprehensive views which only a mind law seeing can form; and they evince equally the power of applying those laws to the facts which he observes. Dr Laycock is the reverse of a dogmatist. He is no visionary theorist, nor mere compiler of the researches of others. Dr Renton then referred, in proof of what he said, to the testimonial of Dr Carpenter, who is such competent authority to pronounce on the capabilities of Dr Laycock as a teacher. To specify (he continued) in detail the numerous subjects embraced by his writings (all of which peculiarly qualify him for a Professor of the Practice of Physic), would occupy an unnecessary portion of time; but Dr Laycock's "Treatise on Nervous Diseases" ought to be noticed, for it is a work in which his judgment, powers of reasoning, and perception, are fully recognised by the profession, for he was the first to show to practitioners the important truth, that they are every day mistaking hysteria for organic disease, have subjected their patients too often to severe treatment, and frightened them and their friends with wrong opinions, when there was no danger. Dr Laycock's papers on the development of a general law of vital periodicity, and of the return of epidemics, are full of original observations, and lay the foundation of a new system of vital proleptics. "The Vital Statistics of England," and "The Public Hygiene of Great Britain," have been specially reported on by Dr Laycock; and on his report of the Sanitary Condition of York, Mr Chadwick, one of the highest authorities, has stated, "that he had no hesitation in saying, that he thought it the most able report he had seen, under this or any preceding inquiry into the sanitary condition of any town." The most recent exposition of Dr Laycock's general doctrines, are contained in the *Review*; although a solitary instance of many, it is acknowledged to contain the most complete, and most suggestive, demonstration of the latest and best views on the practice of physic, yet published. His essay "On the Reflex Function of the Brain," could only be produced by a mind of the highest capabilities, and none but one of that cast could originate or conduct such an investigation, which equally enlightens the path of medical science, and that of legal responsibility and ethics. The successful cultivation of this inquiry alone, was quite sufficient to establish the immortal fame and reputation of any man. The views there recognised, by eminent mental philosophers, have a wide practical application to insanity in all its forms, and to all questions of moral responsibility, which they largely tend to define. I cannot but refer to the high estimation in which Dr Laycock is held by all his colleagues in the York School of Medicine; and I cannot allow to pass unnoticed the importance of personal character, adding dignity to the professorial chair, more especially when I consider how much the Chair of Practice of Physic was exalted by the high-mindedness and classical accomplishments of the Gregorys and the philanthropic exertions of Alison; and I have no hesitation in stating, that, in those respects, Dr Laycock will be found a worthy successor, so far as mental attainments, and the highest intuitions of our nature are concerned. Whether we regard the high standing Dr Laycock holds in the profession, as attested by the most eminent authorities—of his great practical skill and experience in diagnosing and treating disease—the high estimation in which his writings are held, or his qualifications as a teacher—his claims, as a candidate, are well entitled to the favourable consideration of the Council; and none, in my opinion, is more deserving of it than Dr Laycock, who is equally qualified to do honour to our University, as Professor of the Practice of Physic and Clinical Teacher, and to benefit the public as a consulting physician. Had not mention been made, that the Chair of the Institutes of Medicine was a preliminary step to that of the Practice of Physic, I would not have alluded to the subject; but I must be allowed to say, that no fixed rule has been observed with regard to such a transfer. The last occupant of the Chair of the Practice of Physic was removed from the Chair of Materia Medica; and, there is every reason to believe, if the Council had offered the same chair to the present occupant of the Materia Medica Chair, he would have accepted the honour of being promoted to the bishopric, and left Dr Bennett in the undisturbed possession of his curacy, as Professor of the Theory of Medicine. In conclusion, Dr Renton observed, that had the vacancy been one in the Chairs of Special or General Pathology, he would have given him his undivided support, for such appointments he has the strongest claims. But, while Dr Bennett had done great honour to the University by his pathological researches into diseased structure after death, Dr Laycock was more fitted for the Chair of the Practice of Physic, from his skill and experience in treating and detecting the presence of diseased action during life. He (Dr Renton) had no wish to depreciate the claims of Dr Wood, but, as comparisons were unavoidable on the present occasion, he begged to state it as his humble opinion, that, as Dr Laycock and Dr Wood were both labourers in the same field of professional investigation, the former had reaped a rich harvest of fame, the latter was, comparatively speaking, as yet a gleaner.

Dr Sibbald said—I am, in the discharge of duty, constrained to support Professor Bennett. I shall merely give one or two reasons for thus preferring him. First, you have the fact of Professor Bennett drawing a larger class of students than any other lecturer on the Institutes has ever done, not excepting the accomplished Professor Allen Thomson. The average attendance on the Institutes has been raised by Dr Bennett from 110 to 143, while the number of Clinical students last year was 115—a larger number than was ever entered since he was Professor; and, on this branch, I can testify to his invaluable mode of teaching at the bedside of the patient, which he (Dr B.) was the first to introduce into Edinburgh. Is it fair to say that Dr Bennett is only familiar with dead bodies, because he, with his own hand, carefully recorded the results of 2000 or 3000 *post mortem* examinations, and overlook his practice on the living, both as an hospital physician and private practitioner? By looking at his testimonials, no one can deny that, both in overwhelming weight and number, they are greatly in his favour, whether from home or abroad. Let me remind the Council that in Edinburgh, the seat of the first Medical School of Europe, where our chairs are filled by such men as Christison, Simpson, Goodsir, Syme, and other colleagues of no mean reputation, he must be no ordinary man to maintain such a place in the minds of those so well qualified to judge, and all interested in upholding and extending the celebrity of our University. Look, also, at such names from England as Lawrence, Copland, Sharpey, Watson, Marshall Hall, Ferguson, Forbes, etc. etc.; from Ireland—Marsh, Stokes, Carmichael, Corrigan, Cusack; from France—Cruveilheir, Piorry, Louis, Gruby, Andral, Magendie, etc. I might thus take names of the highest repute from Prussia, Austria, and even Russia, were it necessary, to prove the extent of his reputation; but it is not from the *prestige* of Professorial or other eminent recommendations, alone, neither from religious or political bias, but from the independent conclusion of my own mind, that I feel constrained to support your Lordship's nomination of Professor Bennett.

Mr Ritchie said—he was a member of Council in 1848, when he supported Dr Bennett, who was unanimously appointed Professor of the Institutes of Medicine; and it afforded him pleasure in stating, that the subsequent career of Dr Bennett tended to show that the judgment of the Council was correct, in nominating him to that Chair. That he should desire to be removed to the Chair of the Practice of Physic was most natural; and if past services, and the proper discharge of duty give any claim, he might fairly look to the patrons who first elected him to give him the charge he desired; and, without any disparagement to the very talented men who now were candidates for the Chair, Dr Bennett had fully proved, both by testimonials and practice, his entire fitness for the Chair he now aspired to. He had acquired reputation from his writings and great acquirements in medical science, and gratitude was due to him for his introduction of cod liver oil, and other original suggestions. He (Mr R.) had therefore much pleasure in again supporting Dr Bennett's nomination.

The Council proceeded to take the vote on the three candidates proposed. For Dr Bennett there voted the Lord Provost, Bailie Morrison, Councillors Grieve, Crichton, Murray, Dowell, Sibbald, Ritchie, and Sir R. K. Arbuthnot—9; for Dr Wood, Bailie Brown Douglas, Convener Banks, Councillors Millar, Robertson, Lewis, M'Kinlay, Clark, Greig, Stevenson, Bell, Blackadder, and Williams—12; and for Dr Laycock, Bailies Clark and Kay, the Dean of Guild, Treasurer Dickson, Councillors Richardson, Renton, Dick, Cassels, Gray, Forrester, Hill, and Tullis—12.

Dr Bennett's name having been struck off, a division took place between Drs Laycock and Wood, with the following result: for Dr Laycock—Bailies Morrison, Clark, and Kay, the Dean of Guild, Treasurer Dickson, Councillors Grieve, Richardson, Renton, Dick, Crichton, Cassels, Murray, Gray, Forrester, Hill, Sibbald, and Tullis—17; for Dr Wood—the Lord Provost, Bailie Brown Douglas, Convener Banks, Councillors Millar, Robertson, Lewis, M'Kinlay, Clark, Greig, Stephenson, Bell, Blackadder, Dowell, Williams, and Sir R. K. Arbuthnot—15. Mr Ritchie declined voting.

Dr Laycock was therefore declared the new Professor.

PROCEEDINGS OF THE POOR-LAW COMMISSIONERS OF ENGLAND.

A letter was read from the Poor-Law Commissioners, requesting to be furnished with the particulars of the appointment of Dr Wilson as medical officer for the Berwick district. The commissioners stated that Dr Wilson did not appear to possess the necessary qualifications, and that he therefore could not hold the office. Dr Fluker, however, appeared to possess the full qualifications, and under these circumstances, they did not see anything to warrant them in confirming the appointment of a man not qualified for the office. The letter was accompanied by several queries, to which Mr E. Willoby had appended replies.

The chairman said that Dr Kirkwood's time expired on the 29th, but he had no objection to hold the office till the appointment was decided.

Mr A. Smith thought, that as the appointment had been made by so large a majority, the Board should sustain it. The Commissioners were virtually taking the appointment out of the hands of the Guardians; but they should not allow themselves to be overridden by any authority whatever. What are the necessary qualifications? An apothecary's certificate! Is that to be compared with a diploma from the Royal College of Edinburgh?—noted as being the best Medical School in Europe. It would be a disgrace to say so. Here was Dr Wilson, then every way qualified, and more than that, he had served with great credit as a medical officer of the Union. He thought, therefore, that the majority, and minority too, were bound to sustain the appointment—more especially as the latter had not long ago repudiated all such overlaying on the part of the Commissioners.

Mr Gibson thought Dr Fluker stood as high as Dr Wilson, and therefore they should not entertain the appointment at the present moment, but let it lie over.

Mr John Wilson understood, that amongst professionals, the certificate of the Apothecaries' Society was considered as a dead letter, being superseded by that of the Pharmaceutical Society, of which Dr Wilson held a certificate. He had also served an apprenticeship under a pharmaceutical chemist.

Mr Gibson said that the Act required a medical officer to possess certain qualifications, and if they elected one who did not possess these qualifications, they acted illegally.

Mr A. Smith.—They are merely Parliamentary—(Mr E. Willoby, No, no)—and are more for the guidance of an anterior Union than one on the Borders of Scotland.

The Rev. George H. Hamilton said that both applicants appeared to be qualified—the one in addition being qualified technically—but they should not forget that Dr Fluker had been deputed to act under Dr Kirkwood in the office to which Dr Wilson had been appointed, and having served for the small salary, it was natural that Dr Fluker should think he had a right for the larger. It was on these grounds he had voted for Dr Fluker's appointment.

Mr A. Smith said that he could not understand why a majority of 13 to 5 should give way to the minority.

Mr E. Willoby said that the articles of the Poor Law Board, said that "no person shall be appointed unless qualified."

A short discussion ensued, and Mr Darling moved that the course taken in the appointment of Dr Lilly when opposed by Dr Kirkwood be taken now. This was agreed to, and the Board adjourned.—(*Recent Meeting of the Berwick Parochial Board.*)

THE LATE PROFESSOR JOHNSTON OF DURHAM.

James F. W. Johnston was born in the year 1796, at or near Kilmarnock. At the conclusion of his studies he visited Stockholm, from whence he returned about the year 1833, and took up his residence at Portobello. On the establishment of the University of Durham, he received the appointment of Reader in Chemistry and Mineralogy, an office which he continued to hold. During the first year of his incumbency, he appears to have devoted himself to researches in pure chemistry, and there issued from his pen a valuable series of papers on the *Chemistry of the Resins*, and other subjects. The year 1840 may be considered as the commencement of his general reputation. It was then that Leibeg laid before the British Association his Treatise on Chemistry, applied to agriculture and physiology. The publication of that work appears to have at once directed Johnston's attention to the study of agricultural chemistry, for we find him shortly afterwards delivering a course of lectures on that subject to the Durham County Agricultural Society. These lectures formed the ground-work of a large octavo volume, the publication of which commenced in 1841, and was finished in 1844, and which at once stamped him as the principal British authority on agricultural chemistry. During the publication of this work, the attention of the practical farmers of Scotland was forcibly directed to the importance of science in aiding the development of their art; and when, in 1843, the Agricultural Chemistry Association of Scotland was established, Professor Johnston was unanimously selected as the person best suited to hold the office of chemist. During the five years he occupied that position, his laboratory became the focus of agricultural chemistry in this country, and there issued from it a series of researches of extraordinary extent, embracing important additions to our knowledge of almost every department of this subject, and sufficiently indicating the assiduity with which he performed the duties of his office. The Agricultural Chemistry Association had been established for a period of five years, and when at the end of that time it became incorporated with the Highland Society, Professor Johnston ceased to hold the office of chemist, and returned to Durham.

Shortly afterwards he was invited to deliver lectures on agricultural chemistry in the United States and Canada, and on his return he published an account of his tour, enriched with a large number of important observations on the agriculture and general social condition of the provinces he visited. About two years since he commenced his *Chemistry of Common Life*, one of the most attractive and interesting popular scientific works which have ever issued from the press, and at the time of his death he was engaged in the preparation of a kindred work, *The Geology of Common Life.* Professor Johnston was a valued contributor to our own pages, and so lately as May 1855, we had the pleasure of presenting to our readers an interesting communication from him "On the Composition and Physiological Action of the Water recently used in the Durham County Jail." At that time he was far from well, but we little thought that he was to be so speedily removed from among us.

EDINBURGH OBSTETRICAL SOCIETY.

SESSION XIII.

CASES OF INSTRUMENTAL AND COMPLEX LABOUR. BY DR KEILLER.

Dr Keiller communicated to the Society a summary of the more important cases of labour that had occurred in the course of the session, in connection with the students attending his practical midwifery class, etc. The number of cases attended by his class pupils, during the three months' session alone, amounted to upwards of 200, and of these an unusually large proportion presented preternatural characters.

Dr K. briefly cited the more striking particulars of some of the cases to which he had been personally called, amongst which were the following, which he mentioned in the order of their occurrence.

CASE OF CRANIOTOMY.

C. L. aged 33, had previously given birth to three children, but only after very tedious and difficult labours; her first child was born dead, the second died within eight days of its birth, and the third only survived a few months. The present (her fourth labour) commenced at 1 P.M. of the 21st May, the membranes ruptured early, and severe pains continued for many hours, but little or no advance of the head through the pelvic brim, took place.

Dr Keiller was called in the evening of the 22d, when he found the child's head presenting in the first position, and firmly wedged in the brim. At 8 P.M., the fœtal heart was heard beating loudest, although very slow, towards the left iliac region, which farther indicated the ascertained first position of the head presentation. From the gradual failing of the fœtal pulsation, and the symptoms of exhaustion which the patient presented, when first seen by Dr K., he determined on attempting immediate delivery by means of the long forceps, and which were applied in the usual manner. Notwithstanding, however, an unusual amount of traction being for some time used, little or no advance of the unyielding, and now firmly impacted head, was accomplished. After making a reasonable attempt at delivery by the most powerful form of long forceps, it was ascertained by auscultation, that the cardiac pulsation of the child had ceased, and as the patient was becoming more and more feverish, restless, and worn out, by the long-continued, and fruitless efforts at delivery, craniotomy was determined on, and had recourse to without farther delay.

The contents of the cranium were speedily evacuated, a considerable portion of the cranial vault removed, and afterwards a very large head was, with considerable difficulty, extricated, which, however, was by no means found sufficient to terminate the labour, as the enormous shoulders of the child subsequently led to an unusual degree of obstruction. So great was the obstruction offered to the expulsion of the body of the child, that it was found necessary to have recourse to the alternate application of strong blunt hooks in the axilla of each arm, by which the shoulders, assisted by the most powerful traction that could be applied to the mutilated head, were ultimately extracted. The delivery was accomplished about 11 P.M. of the 22d, when the unusual difficulty of the labour was at once seen to have been entirely caused by the enormous development of the child, which was a male, weighing (without the brain and blood, and the other structures which the operative procedure had recourse to, had necessarily removed) upwards of 12 lbs. In length, it measured fully 24 inches. The base of skull was 16 inches in circumference, and the shoulders measured 7 inches from tip to tip, and upwards of 18 inches in circumference. The placenta was readily removed, and weighed about 2 lbs., the umbilical cord measured upwards of 27 inches.

Notwithstanding the apparently unfavourable condition of the mother, and the very unusual amount of forcible extraction which was applied during her delivery, she could not possibly have made a better recovery than she did on this occasion. The body of the child (which appeared more like that of an infant several months old) was exhibited to the society.

CASE OF TWINS—FORCEPS—TUMOUR.

Mrs ———, College Wynd, æt. 27, after a tedious and painful first stage, was delivered of a female child about eight A.M. On examination, the head of a second child was felt descending slowly into the pelvis, at the outlet of which, however, its subsequent progress became obstructed. Dr Keiller saw her about eleven A.M., and found the head fixed in the outlet—the forehead towards the pubis, the head having presented in the third, and descended into the pelvic outlet without making the usual turn into the second position of Nægele.

Finding the pains insufficient to disengage the head, Dr Keiller applied the forceps, and without attempting to change its presenting position, extracted the head with the face towards the pubis. The instrumental operation was accomplished without the slightest difficulty, and was immediately followed by the birth of a full-sized living male child, which, with the female twin and mother, continued to do well. Immediately after the birth of the second child, and before the extraction of the double placenta, a rounded mass was observed to be forcibly expelled from the vagina, along with the uterine discharge, which was at the time considerable. On examination, it was found to be a tumour, of a firm fibrous consistence, and of the size and shape of a large lemon. At first sight Dr K. believed it to be a portion of diseased lobe, or an indurated portion, accidentally separated from the placental mass. On subsequently removing the after birth, however, and carefully examining its entire maternal or lobulated surface, no corresponding deficiency was discovered.

Dr K. exhibited the tumour along with the double placenta, and stated that, on microscopic examination, it was found to present the following characters :—

The fluid scraped from the surface of a fresh section of the tumour, contained only blood corpuscles and granular matter.

On making a thin section of the tumour with a Valentin's knife, it was found to consist of filaments of white fibrous tissue, running in waved lines, and at short and very variable distances, assuming a concentric form. On the addition of acetic acid, this became more transparent, and its elongated nuclei came into view. A very few isolated nucleated cells and fusiform bodies were observed, and also a large quantity of granular mineral matter, which dissolved readily on the addition of nitric or muriatic acid, but was not affected by acetic acid.

CASE OF TWINS—SINGLE BAG OF MEMBRANES.

This case presented nothing peculiar, in so far as the labour was concerned, it being an ordinary instance of twin-birth, in which one child presented by the head and the other by the feet—the second being expelled almost immediately after the birth of the first, but without any apparent separate evacuation of liquor amnii; a circumstance which could be readily accounted for by the very peculiar arrangement which the membranes in this case exhibited.

Dr Keiller stated, that he had not been present at the labour, which was conducted by one of his most intelligent pupils, who had seen a good deal of obstetric practice, but that he had received an account of it to the above effect, and had the placenta (on which the peculiarity of the case depends) brought to him immediately after the labour was completed. The placenta (which was exhibited to the Society) was at first sight an ordinary twin-placenta, having a cord attached to each lateral mass, which, however, were more than usually joined together, giving the entire mass, when viewed superficially, the appearance of being an enormous single placenta. Although sufficient evidence of a division into two halves was observed on looking at the lobular or maternal surface, there was no appearance of any separation into two portions on inspecting the fœtal or membranous side of the mass, across which, between the insertions of the two cords, no trace whatever existed of membraneous attachments similar to those usually found to be present in what are called single twin placenta, which generally indicate across their centre some marks of the double partition of membranes by which twins are naturally separated. The pupil whose case it was, on first examining the placenta, was astonished to find no such partition, a peculiarity which alone induced him to preserve it because of its exhibiting only one bag of membranes, attached, as single amniotic bags usually are, around the free edge or circumference of the placental mass.

DOUBLE BAG OF MEMBRANES IN SINGLE BIRTH.

As an instance of the variety which is occasionally observed in the arrangement and attachment of the membraneous structures of the placenta, Dr Keiller exhibited a placenta shewing a directly opposite condition to the foregoing—viz., *a single placenta with a double amniotic pouch;* an anatomical arrangement of comparatively frequent occurrence, and depending on the mere separation of its layers.

TWIN CASE—PLACENTA OF SECOND CHILD SEPARATING AND DESCENDING BEFORE THE HEAD, AND EXPELLED BEFORE THE PLACENTA OF FIRST CHILD.—HÆMORRHAGE.—FIRST CHILD ALIVE, SECOND DEAD.

Dr Keiller exhibited the placenta, and particularly directed the attention of the meeting to this case, as one of very unusual occurrence. He was called to it by one of his most assiduous pupils—Mr Charles Pridham, who had attended the largest number of midwifery cases during the session. Before Dr K. was sent for, the patient had been delivered of a living child On his arrival, considerable hemorrhage was going on, and on examination he found a portion of a placenta in the passages, along with the head of a second child. On tracing the cut cord of the first child, it was found to pass up beyond the now presenting placenta and head, which led him to conclude that the placenta of the first child still remained in utero—a few pains proved it to be so, as the second child, and its placenta, were quickly expelled. The placenta of the first child was then removed. The second child was born dead, and its placenta found covered with large clots, and extensively lacerated, which sufficiently accounted for the hemorrhage.

TWIN CASE—ABNORMAL RUPTURE OF MEMBRANES.

In this case the patient wanted about six weeks of her full time. Three days before the commencement of actual labour, the membranes of the second child suddenly ruptured, and although the liquor amnii continued occasionally to escape, no pains took place until the third day, when, on examination, a bag of membranes was felt presenting, on rupturing which, the left foot descended, and soon afterwards the child was born. The second child was then felt immediately presenting, also by the feet, but without any liquor amnii, its membranes having burst and become empty three days previously.

INSTRUMENTAL CASE—LONG FORCEPS.

Martha A., æt. 21. First labour commenced about 10 P.M. on the 29th June. The first stage was not completed till about 9 A.M. of July 1st. The head of the child presented in the 4th position of Naegele, and such was the condition of the patient and the child (as ascertained by auscultation), that Dr Keiller deemed it expedient to terminate the labour by the application of the long forceps. When called to the case, about 12 o'clock P.M., the patient was exceedingly restless, her pulse very frequent, her abdomen becoming tender on moderate pressure, and the muscular expulsive powers apparently greatly exhausted. There was also severe headache, and considerable thirst present. On making an examination, *per vaginam*, she complained of much pain, the passages being hot and dry. Although the head was supposed to have been advancing, it was found not as yet to have entered the inlet—the apparent advance being only the formation of an exceedingly large caput succedaneum. The promontory of the sacrum could be readily felt indenting the right parietal bone ; and this, with the firm unyielding condition of the fœtal head, together with the general symptoms presented by the patient, demanded immediate interference. An ordinary pair of long forceps were applied in the left oblique diameter, but in consequence of their want of strength and the force necessary to disengage the head from the brim, it was found impossible to extract without the instrument slipping, which necessitated the procuring of a much more powerful pair of forceps, by which the extraction of a large-headed, but living male child was accomplished. Beyond a few days' dysuria subsequent to this labour, which was an unusually severe one, nothing occurred to interfere with her rapid and complete recovery.

CASE OF CORD PRESENTATION—ITS REDUCTION—MODE OF.

Dr Keiller was called, by one of his pupils, to see Mrs C., who was in hard labour with her second child, and in whom a large loop of the cord was found presenting before the head. Dr K. visited her without any delay, and found that, although a very extensive portion of the cord was protruding from the external parts, it had not as yet altogether ceased to pulsate. The head had not yet entirely passed through the pelvic brim, and injurious pressure on the prolapsed cord was only observed to occur during the pains, which were very frequent and severe—so much so as to render it not altogether free from danger, to attempt what, however, was successfully accomplished—*manual reduction of the cord.*

In the absence of any direct means of diminishing the (to the child) injurious expulsive force, or any instrumental means of hastening the passage of the head through the pelvis, Dr K. proceeded, without delay, to return all the protruded portion of the cord above the presenting part of the child) which, he considered, cannot properly be accomplished without passing the hand up to the brim, and if need be, displacing the head or raising it from the brim, *in the absence of a pain*, so as to make sufficient room for the complete reduction of the loop, which may have descended before or by the side of the head.) After introducing the entire hand into the vagina, Dr K. managed to get the cord reduced and kept up beyond the head, until the latter occupied the brim, so as to prevent any further descent of the cord.

The labour was soon afterwards completed, and the child (though for some time exhibiting symptoms of dangerous umbilical compression) was ultimately resuscitated.

Dr K. stated that he had now saved several children by this mode of treatment, and which, he believed would (like the present case) have been lost by other modes recommended by authors, such as the application of instruments (as the catheter, etc.), modes which he had on several occasions, but never successfully, tried. The most efficient instrument on all such occasions is that which we never require to send or wait for, viz., the HAND, by which we can in most cases succeed in pushing up the prolapsed cord, and ascertain that its reduction has been properly and efficiently accomplished.

Dr Keiller then exhibited a large collection of twin and other placentæ, which he had preserved from the above and other cases, with the view of illustrating the various peculiarities in the formation, size, and relations of the placental mass, and to which he intended afterwards more specially to refer.

ON DISPLACEMENTS OF THE UTERUS—DIAGNOSIS AND TREATMENT OF. BY PROFESSOR SIMPSON.

Dr Simpson communicated to the Society his observations on the diagnosis and treatment of the displacements of the uterus, and referred to the various discussions and papers recently published in France and in this country, in regard to the views entertained by him on this subject, which, along with the remaining transactions of the Session, *will appear in our next number.*

PUBLICATIONS RECEIVED.

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Dickson's Elements of Medicine. Philadelphia, 1855.
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Guy's Hospital Reports. New Series. Vol. I.
Osteological Memoirs. No. I.—The Clavicle. By John Struthers, M.D.
The Microscope in Vegetable Physiology. By Dr Herman Schacht. Second Edition. London, 1855.
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WE regret being compelled, from want of space, to delay the publication of "The Periscope," and Professor Goodsir's Lecture on the Cochlea.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*On the Communicability of Cholera by Dejections.* By W. P. Alison, Emeritus Professor of the Practice of Medicine in the University of Edinburgh.

To the Editor of the Edinburgh Medical Journal.

Heriot Row, Nov. 15, 1855.

Dear Sir,—In the paper "On the Application of Statistics to Medical Science," particularly to the investigation of the external causes of diseases, which you inserted in your last number, I stated that Dr Budd of Bristol had expressed a decided opinion in regard to the most usual mode of extension of the malignant Cholera, viz., that the specific poison exciting that very peculiar disease exists chiefly in the peculiar matters—probably especially the "rice-water stools," discharged from the bowels,—but that it is multiplied and acts chiefly, not immediately after their discharge, but in consequence of a *particular decomposition* which they *subsequently undergo*,—that the most frequent mode of communication from the sick to the healthy has been simply by their *using the same privies*, and that the most effectual means of checking that extension are such as *keep the privies, and drains from the privies*, used by cholera patients, strictly *separate from those used by any healthy persons*, and such as *effect the destruction of that peculiar matter*, as soon as possible after its discharge from the body. But I was not aware of the mass of evidence which he had collected in proof of these propositions, great part of which he had published, anonymously, in the *Association Journal*, in several letters, beginning in October last, putting his name only to the two last in the series; and mixing the whole of that evidence with a good deal of pathological discussion as to the development of the poison, which, whether well founded or not, may probably have had the effect of retarding rather than promoting the attention of the profession to his facts. Dr Budd has since done me the favour to send me copies of the whole of those letters, from which I have extracted such statements of facts as seem to me almost absolutely conclusive, simply as statistical documents, the inference from which is trusted to the mere *force of numbers* in establishing all those propositions; and I send these to you, in the hope that you will give them all the publicity in your power, as early as possible.

It appears to me that, as regards practice, these facts are of more value than all the other speculations and observations which have been hazarded, in regard to the extension of cholera, put together. It is quite in accordance with what has been observed, as to the poisonous property of the "rice water stools" in Germany, and with what has been ascertained in that country as to the *sausage poison*, and also in regard to the poison causing the diffuse inflammation of puerperal fever, to suppose that some of the matter which escapes from the body of a patient in such disease, in a particular stage of subsequent decomposition, acquires the malignant property, and is thus multiplied. This is no more than was inferred, a century ago, as to the extension of dysentery, by Sir John Pringle; and we have only farther to assume, what in fact is a part of the data as to every epidemic disease, that the virus is liable, from unknown causes, to great variations of intensity in different seasons, in order to perceive that all the strange anomalies, which have baffled all other speculations on this subject, may be reduced to general laws, admitting of practical application, with every prospect of success. I need only mention two difficulties, of which we now see the very probable solution. 1. The mode in which cholera virus has seemed to attach itself to the clothes of some patients and not of others, so as to be evolved afterwards when these were washed; and, 2. The mode in which it has adhered to some places and not to others, so as to form "tainted districts," of very various extent, and in all kinds of localities, as I have myself observed, *e.g.*, in Simpson's Court, Lauriston; a place of no extraordinary damp or filth, but where it caused a greater mortality, in the year 1832, than in any other part of Edinburgh, while Lady Lawson's Wynd, close by, was hardly affected; or a common stair near the head of New Street, Canongate, where it caused four deaths within four days, in 1849, in a *single room,* on the second floor,—no other case occurring in the whole stair; or in the village of Water of Leith, where it prevailed in many houses along the *left* bank of the stream in 1832, and again in many along the right bank in 1849,—without touching the opposite bank of the stream on either occasion.

At all events, it seems obvious, that while there is this strong ground for suspicion, as to the peculiar morbific and self-multiplying power of matter contained in the stools of cholera patients, no arrangements intended to prevent the diffusion of the disease, in hospitals, poor-houses, prisons, or in any districts of a town or village threatened with cholera, can be held to be consistent with our scientific knowledge, in which provision is not made for keeping the privies, or close-stools, and the drains from the privies, used by these patients, separate from all others; and for disinfecting the matter passed from their bowels, and the bodyclothes or bedclothes which may have been soiled by that matter, as soon as possible after it has been passed; whether precisely in the manner, by the use of the chlorides and chlorine, advised by Dr Budd, or not, is a point which need not be discussed at present. I have already directed to it the attention of a gentleman who is very conversant with the making of chemical drugs on a large scale, with a view to determining the mode that may be at once cheapest and most effectual. But, it is certain that the mode of communication of the disease, now in question, has not engaged attention as it should have done, in most discussions as to the prevention of cholera; and the sooner, and the more generally, that the attention of medical men, over the world, can be directed to the following statements of facts, the better is the prospect of a most material benefit being conferred on our species.—I am, Dear Sir, yours faithfully,

W. P. ALISON.

P.S.—On mentioning to Dr Laycock some of the most striking of the facts recorded by Dr Budd, as to "tainted districts," I was glad to find that he has known cases, just as I have, which he thinks easily explained in this way, and quite anomalous on any other supposition yet suggested.

A great workhouse stands in open country, in rather more than *nine acres* of land, and on a high and commanding spot. It is a place of comparatively ancient date, and consists of a number of detached buildings planted here and there, with wide spaces between. Three such buildings—long, narrow, and pretty lofty—may be described in general terms, as forming three sides of a quadrangle several acres broad. One of the three is occupied by girls, another by men and boys, the third by women and infants. Together, they house the greater number of the inmates. Several other buildings, of less regular form, and variously occupied, are scattered over the remainder of the vacant space, but without crowding. The whole place is open to the four winds, and no higher ground or sheltering trees are near to break their force. It is difficult, in fact, to imagine a more airy and healthy site. Here, in the early autumn of 1849—shut in from the world without by a boundary wall and other stringent powers, and all their incomings and outgoings known and duly noted—there dwell 750 souls, of what are called the pauper sort. Their fare is, on the whole, a liberal fare; and, with the exception of being in some parts rather crowded, they are well and comfortably housed. Cholera has prevailed in the neighbourhood of the place, and once came near its precincts, but did not enter its walls, and now again, and some time since, has died away. A new comer, however, has, at length, brought the disease from the great city, three miles off, where cholera is now rife. Immediately on her arrival, Jane Davis came under treatment for diarrhœa: on the 16th August, her case became one of confirmed cholera; and, on the 18th August, she died of that disease. It is an event of quite immeasurable moment to the needy and unsuspecting souls whom poverty has brought together within these walls. On the 21st August, there was another case, and then another, and another; and, in little more than a week, there were more than fifty cases of cholera at once.

Before Jane Davis arrived, the health of the inmates generally was good. The weather having been fair for some time, the sick list was, in fact, lighter than common; and, as I learned from the medical attendant, diarrhœa, especially, did not prevail more than was usual at the season of the year. Within five weeks of Jane Davis' death, 144, of 645 inmates (for to that number the 740 originally there were soon reduced by flight) had fallen victims to the disorder. Nowhere that I know of, in the length and breadth of the land, has this relentless reaper reaped so rich a harvest.

On the eastern side of the workhouse there stands a long narrow building, consisting of two wings, one occupied by boys, and the other by men. It is one of the buildings already mentioned. A central portion of it is the workhouse chapel, which at once divides these wings from one another, and shuts off all intercourse between their inmates. It is the men's wing with which we have to do.

The first thing to note is, that a few paces to the right of the common doorway, there is a large privy, with numerous gaping holes, common to the men, and used exclusively by them. This privy is, unfortunately, not in the best sanitary state, as is, indeed, offensively evident to the nose of all who draw near it. Subsequent investigation proved, in fact, that the holes themselves were the only vent for the gases generated from its large and decomposing contents. When cholera broke out amongst the men, this privy became, in the natural course of things, the receptacle of discharges from the sick. I dwell upon this fact, because it is the key to all that follows. If, in fact, choleraic discharges contain the cause which gives cholera, this privy was of all places the place to catch it. The weather, too, happened at the time to be hot and dry, and exhalation was in proportion rapid. So that here, admitting the presence of the poison, were all the conditions combined which are most fitted to give it virulence and effect.

Let us now enter the building itself, and inquire into the fate of its inmates. It is a narrow building of two stories, with a passage running down the middle, and wards on either hand. Here there lodged, when Jane Davis died, 119 men. Of these, when cholera became rife, a considerable number (I do not know exactly how many) took to flight. Of those who remained, thirty-five, or nearly (if not quite) one-third, had confirmed cholera; and twenty-eight, or nearly (if not quite) one in four, died of it.

Let us see how these cases were distributed. On the upper floor, at the end the farthest from the doorway, are two wards, immediately opposite each other, and which, for convenience sake, we will call A and B. It is important to add, that, by the time cholera reached this part of the building, a cholera hospital had been set up in another part of the place, to which all who fell sick were at once removed.

Ward A and ward B each contained thirteen inmates. But how different their fate! In ward A, there were seven cases of cholera and six deaths. In ward B, there was only a single case. Here, it must be remembered, were men, all drinking the same water, fed from the same table, and breathing a common atmosphere. A passage of some six feet wide was, in fact, all that divided them. What can be the cause of such a frightful outbreak of cholera in the one ward, and of such almost entire exemption from it in the other? The contrast was rendered the more remarkable by the fact that ward A was a ward of healthy men, while ward B was a sick ward. For all experience has shown that invalids, so far from enjoying an exemption from cholera, are incomparably more prone to it than the healthy.

E.g.—Not a hundred yards from this spot, on the women's side, there was also a sick ward, with six women in it. Early in the outbreak, this was made a cholera ward. Cholera was *brought* to these sick women, and *they all took it, and all died of it.* There was no other instance in the place of such wholesale mortality. I was perfectly justified, therefore, in saying that sickness gives no exemption.

But what sealed the doom of the sick women, proved, as we shall presently see, the safeguard of the sick men. Among these there was, as I said, a single case of cholera. The history of this case was remarkable.

The subject of it was a convalescent; and, being convalescent, this man was in the habit of going to the privy, as other men do, to satisfy the calls of nature. *He was the only inmate of the ward who was able to do so, and he was the only one who got cholera.*

It may, perhaps, be well to add, that the facts I have here related are all perfectly authentic. They were furnished to me personally by the governor of the establishment (who knew nothing of their import), in several visits which I made to the place soon after the cessation of the outbreak, when I also had the assistance of one of the medical attendants employed in that great emergency. They were further verified by careful reference to the registers of the workhouse, which furnished me with the dates of the events, and the names and wards of the sufferers.

I have already said, that the great body of the women were, like the men, lodged apart in a detached building, which stood at a considerable distance from, and parallel to, the one already described. This building, also, was provided with one large privy, common to the women, and used exclusively by them. Here, when cholera broke out in the workhouse, were housed 244 persons, including 29 infants of tender age. Of these 244 persons a considerable number fled. Of those who remained, as many as 81, or more than 1 in 3, had cholera, and 74 died.

In every ward a large proportion had it: in several one half died, and in one ward not one escaped death. Now, within a few paces of the very spot where this appalling mortality was occurring, there were 16 persons housed in a separate building, who *all escaped.* Not one of them even had diarrhœa, and yet these 16 persons *were fed from the same table, and drank the same water* as their neighbours, who, close at hand, were dying by the score. But the circumstances of the 16 who thus marvellously escaped were peculiar. Fortunately for them, these 16 persons all had either itch or scald head, and were in consequence closely confined to their rooms, and, in particular, *strictly debarred from all resort to the common privy.* There was, in fact, no such thing as a privy attached to the premises in which these people were. But more striking still was the almost entire exemption of 66 children, who lived in a building to themselves in another part of the place. To this building was also attached a privy common to the children, and devoted to their only use. Every morning, before the children were up, this privy was flushed, to keep it clear of accumulation. Another fact of importance to remark is, that it drained into a cesspool which had no connection with the general drainage of the place. A single case of cholera occurred among these children early in the outbreak; but the subject of it being removed to another part of the establishment immediately after the first seizure, the disease did not spread. The case did not end fatally; and the 65 other children continued to the end *in their usual health.* And yet the building in which they lived stood in the very shadow of another, where, out of 120 inmates, there were 28 who died of cholera, and only 6 who were not attacked.

As these instances of striking exemption, in almost actual contact with others of such appalling mortality, multiply, it becomes less and less possible to resist the conclusion, that the disease which was causing such havoc among the inmates of this devoted place was propagated by the discharges from the infected, and that the unparalleled rapidity and extent of its spread were due to the circumstance of so large a proportion of these inmates being brought into close relation with these discharges in the privies which had become the receptacles of them.

With the exception of some twelve or fourteen persons, not one of the eighty-four persons who had cholera here had at any time any direct personal communication with the infected. So that, if the spread of cholera in this building was really due to the importation of cases of cholera into it, in the great majority of instances the privy was the only medium through which the poison could in any intelligible way be supposed to be transmitted from the sick to the healthy. I ought to add that, from the moment when cholera began to be general in this building, a female cholera hospital was set up in another part of the place, to which every one who fell sick was at once removed.

We pass now to another and quite peculiar phase of human life—from the workhouse to the mine. It is a coal mine into which we have to descend: here, at the depth of a hundred fathoms or more, there daily descend some forty men, to ply their dingy trade. Not from a single hamlet or village do these men come, but from dwellings scattered over hill and valley, some of them even miles apart. Up to the date of our history, all has gone well in the pit, and the men are in perfect health, and in full work. On the 28th of May, 1849, Francis Tippett goes down the shaft, carrying the seeds of the deadly disorder in him. The history of his own infection I cannot exactly tell, and it is not important to the case It is sufficient to know that cholera, gradually spreading from a great local outbreak a short way off, had begun to prevail near his home, and that he had become infected. He has scarcely reached the bottom, before pressing and frequent calls to stool, and rapidly failing powers, declare but too plainly the nature of his attack. It is hardly necessary to add that, in such circumstances, the pit becomes a privy. In a few hours, this poor fellow is brought up from the mine in a state bordering on collapse, and in a few hours more he is dead On the following day, Thomas Palmer, who worked at Tippett's side, and who helped him home, fell ill of cholera too, and died before the day was out. Then came another and another case, and, before many days had passed, cholera had attacked as many as *seventeen* of these forty pit-men, and had destroyed the lives of *nine*. Diarrhœa was universal in the pit. In the course of time, it became so plain to the colliers that the infection was in the pit itself, that to a man they refused to descend the shaft. It is not uninteresting to add, that the more intelligent among them who took the disease all ascribed their attack to the effluvia arising from the discharges left in the pit by the sick man; or rather, I should say (if I speak of the whole history), by the sick men; for poor Tippett was not the only one who found himself pressed in the pit by the same fatal emergency.

Now, here is a case which, as it appears to me, can only admit of one interpretation. That the men who had cholera here owed their disease to the tainted air of the pit, may be taken as a certain fact; it would be an insult to the understanding, indeed, to enter into arguments to prove it.

It is scarcely necessary to add, that not only does this striking history bring the propagation of the disease home to the choleraic discharges, but, from the very nature of the conditions, it excludes every other cause.

There can be no supposition here of a disease communicated by food or water infected with a common taint. Of these forty men, nearly every man was fed on fare prepared by a *different hand*, and drank water drawn *from a different source;* so that we have here, in events occurring in the common course of human life, a conclusion worked out with a clearness and precision which can generally only be secured by the artifice of experiment. Indeed, had this been a question of abstract science, and not one that concerned the lives of men, and had some ingenious Faraday artfully disposed the order of events, carefully eliminating one by one every possible source of confusion, in order to extricate the hidden truth, he could hardly have made a better arrangement than was here realised in the natural conditions of this great catastrophe.

Did time and space allow, I might illustrate this subject still further by the case of another disorder, which is also attended by an intestinal flux, and caused by a contagious poison. I have for many years had in my possession facts which contain the clearest proof that that form of continued fever which is attended by ulceration of the intestine propagates itself also (though not, perhaps, so exclusively as cholera) by the intestinal discharges, and finds in the privy and the sewer a means of diffusion which all have already recognised, but few or none have rightly interpreted. That evidence, however, I shall reserve for a future time and another occasion.

The conclusion to which we have come, as to the mode in which cholera is propagated, is illustrated by all the most salient characteristics of its diffusion, and these are so striking that it is scarcely necessary to appeal to particular instances in proof of the fact.

Take, in the first place, the broad and now quite notorious connection of malignant cholera with the effluvia arising from defective sewerage. All this outcry about the danger of the open ditch, the noisome privy, and the untrapped gulley-hole, is but too well founded. But what does all this mean? Not, surely, that the privy or the sewer gives cholera because it is exhaling foul gases! If so, why, at this moment, when cholera is raging in London like a plague, are Newcastle, and Hull, and Portsmouth, free? If so, why, in this particular court, are the inmates dying by the score, while, in the court hard by, which is in no better, but in worse sanitary plight, but whose drains are in another area, are all the inmates healthy? From these, and a thousand other facts, it is clear that the foul drain does not give cholera because it is the source of offensive gases, but because, in receiving the discharges from the sick, it has become the channel of the *specific poison.* Foul gases, by lowering the health, predispose to disease; but, unless the specific element is added, they cannot give the specific disorder.

But, if the operation of this mode of propagation is too plain to be overlooked, even in these simple and broad relations, there are certain special and extreme illustrations of it which are still more striking. Among these may be mentioned the singular fatality of cholera in workhouses, jails, pauper schools, and pauper asylums. In the workhouse and the jails, the facts are peculiarly important, not only in bringing home the propagation of the disease to the discharges from the sick, but from the impossibility of explaining the singular fatality of the outbreaks which occur here on any other intelligible grounds; for although in some of the workhouses, where cholera has committed great havoc, the inmates have been crowded, and, in a certain sense, not well fed, yet, on the whole, they have been much less crowded and far better fed than the average of those who constitute the victims of this frightful disorder.

In some of the public establishments of this sort, in which it has raged, there has been absolutely no single fault to find under either of these heads. And yet, as I said before, workhouses have offered instances of wholesale mortality, for which, in this country, there has been no parallel in any of the common conditions of human life.

Of this, the outbreak, of whose history I have endeavoured to trace a few of the leading incidents in the first part of this letter, is a signal example. It is perfectly impossible to explain the deaths of the hundred and forty-four persons who miserably perished in that outbreak, in the short space of five weeks, by any reference to the general conditions of their way of life. In comparison with the usual haunts of cholera in towns, this workhouse was a perfect *model of order and cleanliness.* What, then, was there left to account for so appalling a mortality?

To cause a fatality so peculiar, there must have been some equally peculiar condition at work—a condition at once common and peculiar to establishments of this sort. I need not say what this condition is. In the case now before us, it consisted in the fact that, for the use of 211 women, 119 men, and 126 girls, there were but *three ill-constructed privies, which were alike the receptacles of discharges from the sick, and the daily and necessary resort of the healthy.*

But, as if to eliminate every other element that might embarrass the conclusion, outbreaks of cholera have been known to occur in establishments of this sort, in which *the disease has been entirely confined to one sex.* In some instances men, in others women, have been the sufferers. Had the malady been confined, in these cases, to some three or four persons, or to a single ward, there would have been nothing in them to call for remark. But, in more than one such instance, it has happened that, while among one sex there has been no single case of cholera, among the other it has raged with the greatest virulence—prevailing with great severity in several wards in succession, or at once, and (apparently) among inmates having no direct personal communication one with another.

As I have had no opportunity of studying the local details of any of these instances, I must necessarily speak of them with a certain degree of reserve. If, however, I am right in my surmise, that this great fatality in one sex, and entire exemption of the other, has happened more than once, where both sexes have not only been fed from the same table, and supplied with water from the same source, but have actually lived under the same roof, the fact would seem to be "a glaring instance" of the cholera propagating itself through the medium of emanations from the infected privy.

The diffusion of the choleraic poison through drinking water, when it does occur, is no doubt still more deadly; as Dr Snow has clearly *proved* in one case, and rendered probable in many others. But, as foul privies, ill-constructed drains, and open ditches, are all but universal, while, in the majority of places at least, the communication of these with drinking water is exceptional only, the emanations from the former must be the most common mode by which the disease is propagated.

We have already seen the effects of the choleraic poison in the infected privy; let us follow it now from the privy into the sewer.

Now, one obvious result of its diffusion in *closed* channels, such as the sewer presents, is, that the dilution of the poison, to any great extent, at least, is altogether prevented. The necessary consequence is, that where the course of the sewer is a long one, the poison may be carried a long way with its deadly powers intact. So that, by the closest possible induction, we actually come to this extreme conclusion, that where cholera happens to occur in a house in good sanitary condition, and among people who take needful precautions, the person at the bedside of the sick man may not be in a tithe of the danger of catching cholera from him, that is incurred by some unsuspecting stranger, who may happen to live at a long distance on the line of sewer into which his discharges pass, and at a point where, through some reeking gully-house or ill-trapped privy, this sewer discharges its effluvia into the air.

Another important point to bear in mind is this: that, if there be any truth in what was said in a former letter, as to the vast amount in which the choleraic poison multiplies in the human body, the discharges from a single malignant case may, possibly, under appropriate conditions, infect the sewers of a whole district. Wherever, on the line of such sewers, there is an open vent, and fit subjects are at hand, there the poison makes its presence felt. And this, no doubt, is, in many, if not in the greater number of cases, the true explanation of one of the most striking of all the characteristics of the spread of cholera; namely, its frequent *simultaneous* outbreak in a number of houses, scattered over a particular district, whose inmates have never been in personal contact.

I have, while I write these very lines, an instance before me, in which a casual case of cholera, occurring at the top of a long sewer, has been followed by a series of independent outbreaks along its course, springing up wherever there was an untrapped privy, or other vent for the poison, down the line of drainage. As every fresh case which thus arises adds its own contingent to the previous stock of poison, the infection soon rises to a point sufficient to account for any degree of mortality that has been known to occur under these conditions.

It is in the crowded courts of the low parts of large towns, where one ill-constructed and offensive privy often serves for all the inmates, that the mortality generally reaches its climax.

It is of the first importance to remark, that when cholera developes itself in this manner, the order of events not only does not bear the common semblance of contagion, but occurs in such a way, as appears to those who have not the key to the phenomena to put a direct negative upon that mode of propagation. Indeed, it is not the least striking testimony to the truth of these views, that the very facts which seem, at first sight, to tell most strongly against the notion that cholera spreads by infection from the sick to the healthy, turn out, on closer scrutiny, to be the strongest of all evidence in favour of it.—*Association Medical Journal, Oct.* 27, 1854.

What unspeakable importance do these conclusions give to the method proposed in another letter for the prevention of cholera, and which has for its principle the destruction, by chemical and other means, of the infectious powers of the choleraic discharges.

If things should turn out to be as they seem, the only limit to the efficacy of that method would be the extent and completeness of its application. We should have in that case, in the simplest possible measures, means for the prevention of cholera more certain even than vaccination for the prevention of small-pox. Can this really be? It would be presumptuous to hazard a prediction on a question that can only be fully and finally answered by time, and by the intelligent and zealous co-operation of so many different hands. Meanwhile, it is enough to show how much may be reasonably expected from this method, if thoroughly applied; and earnestly to recommend a trial of it.

P.S.—When I sent the above letter, I had no idea that the views I put forward in my three former letters on the cause and prevention of cholera, had since been confirmed by the distinguished and independent testimony of Baron Liebig, and his colleagues Drs Tiersch and Pettenkofer.

Recommendations endorsed by a person so truly eminent and of such European reputation as Baron Liebig, are sure of immediate adoption, not only in high quarters, but by the public at large.

You will not fail to be struck with the close analogy of the views to which experiment has led the Munich chemists, on the subject of the fermentation of the choleraic discharges, to those to which I have myself been led, by an entirely different course of induction. The interpretation I put upon the fact is, however, in many essential points, widely different from theirs. It might perhaps savour of presumption, if I were to add, that the more *specific* view I take of them, appears to me to be more in accordance with the truth.—*Association Medical Journal*, Dec. 22, 1854.

On the 12th October, 1854, cholera suddenly made its appearance in the Horfield Barracks, about two miles from Bristol; and on the following day I was summoned to the barracks, to advise as to what steps should be taken in the emergency. The disease had been for some time more or less prevalent in the neighbouring city; and the village of Westbury, rather less than a mile away, had also quite recently been the scene of a severe outbreak of it. In the barracks, being of recent date, it had not as yet made much head. On my arrival, I found that two men, Cox and Williamson by name, were in hospital, in the stage of collapse; and that two others were suffering from severe choleraic diarrhœa.

At the date of this outbreak there were living in the barracks from five to six hundred men, for whose use there were five privies, the whole of which were, as I was informed, in a very offensive state. In consequence of the protracted drought, the barrack pumps had lately failed, and all the water used in the barracks had to be got from a distance.

With a view to check the spread of the disorder, I advised the immediate adoption of the following precautions:—

1. All discharges from the sick men to be received, *on their issue from the body, if possible,* into vessels containing a strong solution of chloride of zinc.
2. All linen tainted with these discharges to be placed, *without loss of time,* in water strongly charged with the same disinfectant. Tainted mattresses, and other articles not admitting of this treatment, to be burnt.
3. The privy into which the discharges from the sick had been thrown, *to be reserved exclusively for that use.*
4. That, and all the other privies in the barracks to be thoroughly disinfected twice a day by the liberal use of chloride of lime and of chloride of zinc, in solution.
5. All the men in barracks to be mustered twice a day, and examined as to the state of their bowels.
6. A watch to be kept on the privies; and every man seen going twice to the privy within a short space of time to be treated as a cholera patient.
7. The men to be prevented from visiting the neighbouring infected city and village until the subsidence of the cholera epidemic.

The result was that, within the next few days, some eight or ten cases of severe diarrhœa were detected, which were at once dealt with, and which soon yielded to appropriate treatment. *No other case of confirmed cholera occurred in the barracks.*

To this case I have the pleasure of adding the following exactly similar one, which I quote from Baron Liebig's letter to Dr Hoffman, published in the *Medical Times and Gazette* of November 14th.

"In the prison of Kaisheim (in Bavaria), the cholera was introduced by an individual who died there; and the early employment of disinfectants was the cause of the disease being limited to this case, and of but one of the other 500 or 600 prisoners, although in a dangerous locality, having been attacked. On the other hand, in Ebrach (in Bavaria), where, from ignorance, this precaution was was not at once adopted, 15 per cent. of the 350 prisoners died."

Until the two cases already related can be met by cases of an opposite character, the true inference to draw from them, even if they stood alone, would be, that the preventive measures put in force in each really did effect *what they were intended to effect, and what in one case at least it was predicted they would effect;* and that they were the means of suppressing what might otherwise have been a severe outbreak of cholera.

But these instances do not stand alone. In the recent epidemic of cholera, I tried the same method in a large number of cases in private practice; and in no instance in which I was consulted early did the disease spread beyond the single member of the family first affected. One of these examples, in particular, made a great impression upon me. The house in which it occurred had a common privy discharging itself into a drain, which within a very short distance traversed and received the drainage of a part of one of the worst neighbourhoods in Bristol —a neighbourhood occupied by a low population, living in houses for the most wanting in every good sanitary condition, and which, in former epidemics of cholera, had been most severely visited. Now, in this instance, not only did the disease not spread beyond the person first affected, but no single other case occurred along the line of sewer leading from it.

In striking contrast to this, a case in which no precautions were taken, and which occurred a few days afterwards in another part of the town, in a house delivering its sewage into the head of a long sewer, was followed, in the course of the ensuing week, by a series of severe and independent outbreaks down the line of drainage, wherever a defective or ill-trapped privy offered a vent for the poison.

While I write these lines, I have been informed of a very striking instance of the successful employment of the same preventive measures during the recent frightful epidemic of cholera in the island of St Vincent's. Acting on the advice of a medical friend of my own, who had seen much of cholera, and who had long been cognisant of the views developed in these letters, as well as convinced of their truth, a planter in that island, as soon as cholera broke out on his estate, encamped all his negroes in open ground, and had a deep pit dug in the earth, and laid with a deep stratum of Collins' disinfecting powder, to serve as a receptacle for the discharges from the sick. I cannot as yet give the result in precise figures; but, stated in general terms, it amounted to this, that, whereas the neighbouring estates were all decimated by cholera, and some almost depopulated by it, this gentleman's estate escaped with a comparatively slight outbreak. The case was the more striking, because, if I am not misinformed, it was the only instance in the island of such exemption.—*Association Medical Journal*, March 2, 1855.

Katcha River, Sept. 23, 1855.—"To add to our misfortunes, the Fourth Division was encamped on an old encamping ground of the Russians: the cholera has consequently broken out with great virulence among them."—(*Times Correspondent.*)

A short time ago, an eminent Indian officer related to me, with the most circumstantial detail, two instances that had occurred under his own eye, in which.

of two bodies of men encamped close to one another, and supplied with the same rations and with drinking water from the same source, one had been decimated by cholera, while the other remained without a single case. My informant, who knew nothing of my own views on the subject, mentioned the fact as one of a class that had not only hitherto baffled every known theory, but as one that exhibited, in the most striking light, the mysterious and inscrutable character of the pest. A mortality so wholesale, side by side with an immunity so entire, and where all things would seem to be in common, is indeed well calculated, at first sight, to invest the subtle cause of it with an air of mystery.

In the particular instances just referred to, the solution of the enigma, no doubt, lay in the *fact, which was elicited* from the gentleman who related them by inquiries expressly directed to the point, that the two bodies of men, who were the subject of his story, and whose fate was so different, were provided with separate *latrines*, placed at a distance from one another, one of which becoming infected by the first casual case of cholera, had spread the disease widely among the men who used it, while the other body of men, who did not come near it, remained intact.—*Association Medical Journal* March 23, 1855.

The measures I would suggest for checking the spread of cholera are in strict accordance with these views. Their one great object would be, by all the means at our command, to *extinguish and destroy the noxious powers of the choleraic discharges*, and thus to abate the spread of the disorder by getting rid of the poison at its source. This should be attempted, first, By causing, as far as possible, all discharges from persons ill of malignant cholera, or of choleraic diarrhœa, to be received, on their issue from the body, into vessels containing a solution of chloride of zinc, or some other chemical agent destructive to organic compounds. Secondly, By daily and frequently flooding all the places, which become the next receptacles of these discharges, with chemical agents of the same class. Thirdly, By subjecting the sewers or ditches, which these receptacles feed, to the same treatment.

The first of these measures could only be effectually carried out by the intelligent co-operation of the sick themselves, and of the persons in professional or other attendance upon them. As this is a condition which it would not be possible in all cases to insure, this part of the plan would necessarily be more or less imperfectly carried out. Unfortunately, it is that part in which most peculiarly the hope of safety lies.

The two other measures admit of the most perfect execution, provided only that the public bodies who are invested with authority in such matters will see to their being enforced.

It is not necessary here to prescribe the methods or the particular organization to be adopted for carrying out these measures, or the modifications they may require to render them effectual in the workhouse, the jail, the camp, the ship, and the mine. One very ready mode of disinfecting sewers has, however, occurred to me, which I venture earnestly to submit to the consideration of all who are concerned in the matter. The method I would propose, consists in the disengagement of gaseous chlorine in the sewer itself; and the means by which I would effect this are the following: Take one of the large glass carboys employed for storing sulphuric acid, and put in it a sufficient quantity of the materials used for the evolution of chlorine gas. Place the apparatus in some obscure corner, in some back yard or area, and then, by means of a gutta percha hose fitted to the neck of the vessel, and passing through a house drain, let the gas issue into the sewer. If the proper conditions as to level and other simple points were observed, the disinfectant might be left to diffuse itself. If this plan should be found on trial to succeed, nothing would be easier than, by planting one or two such apparatuses as these at different points, to disinfect the sewers of a whole district, at a cost that would be comparatively trifling. With the appropriate modifications in the nature of the generating apparatus, sulphurous acid might readily be made to do the same duty, and perhaps with still greater effect. Indeed, it might be well worth considering, if the difficulty of cost could be got over, whether one or other of these methods might not with advantage be made a permanent feature in sanitary arrangements.

The poison by which the disease is caused is of too subtle a nature to admit of being entirely destroyed at the hands of man. At the same time, if there be any truth in the views put forward in this letter as to the mode of propagation of cholera, it would appear to be equally clear that, if the measures here recommended were universally carried out, and with anything like the degree of zeal and completeness which the magnitude of the evil demands, not only might many valuable lives be saved, but great calamities averted. At any rate, these measures have one great recommendation; *they can do no harm.* They have also the additional advantage of being at once comparatively inexpensive and easy of execution; and even if they failed in their prime object, they would at least help to abate a great nuisance. But, beyond all, there is one other circumstance which specially invites to their trial—the peculiar form, namely, in which the cholera poison is cast out of the body. In small-pox, and in many other infectious disorders, the specific virus exhales into the air from every pore, and, in its very issue from the body, is at once beyond our control. Here, on the contrary, it would seem, if our views be correct, the specific poison is cast out in a form which, whether in its issue from the body, or in the closed channels into which it next passes, places it in a peculiar way within our power.

Looking at the subject as a whole, I feel sure that the mode of dealing with cholera here recommended will, in the end, be universally adopted; and I do not think I am assuming too much in believing that the time will come, and is not far distant, when every one will marvel that measures so obvious, supported by such wide analogies, and recommending themselves so plainly to common sense, should have been so long overlooked, and so slow in being carried out.—*Association Medical Journal,* Oct. 13, 1854.

ARTICLE II.—*Medico-Legal Investigation—Child Murder.* By ROBERT WISEMAN, Surgeon, Cupar.

IN consequence of information obtained by the legal authorities at Cupar, Mr Morrison, procurator-fiscal, accompanied by Drs Grace and Wiseman, proceeded in company on the morning of the 30th of August last, to Drumcarro farm-steading, which is situated about five miles to the eastward of Cupar, the county town of Fife. Their object was to investigate the circumstances connected with the death of a child, whose body had been found in one of the coal-pits of that neighbourhood. On their arrival at Drumcarro, the medical gentlemen were introduced to Dr Archibald of St Andrews, who happened to be accidentally in that neighbourhood, and who was thus also present at the subsequent examination of the child's body. The body of the child had been placed in one of the out-houses of the farm-steading, and was there examined.

The body was that of a female child, and was apparently well formed. It measured thirty inches in length, and divested of its clothing, was judged by one of the police-officers present, by poising by the feet, to weigh from fourteen to sixteen pounds. It was found that it had cut two teeth in the lower jaw, while the incisors of the upper jaw remained uncut. The integuments of the head and face were much tumified and ecchymosed; and the arms of the child were also discoloured, and appeared as if they had been scorched or scalded, exhibiting in this respect, a strong contrast to the other parts of the surface, which had been protected by the child's clothing.

There was a marked flattening of the forehead and face, over the left eye, the parts here being blackened; not only by the presence of a large amount of ecchymoses, but by adhering coal-dust and gravel; many of the minute pebbles of which, being driven in, so as fully to penetrate the integuments. The integuments of the back parts of the wrists were blackened in the same manner, and more especially of the left arm.

There was found, upon dissection, a large extravasation of blood in the cellular substance immediately under the scalp. It appeared in the shape of a continuous sheet of coagulum spread over the surface of the cranium. The bones of the head were to a considerable extent flexible; and were of such consistency as to admit of their being cut with some difficulty, by an ordinary cartilage knife. The skull was found fractured, or rent open in several places; but more especially in two triangular spaces, towards its base, one behind each ear; and at the seat of one of these fractures—that of the right side—the *dura mater* itself was rent open. The apices of the triangular fractures, pointed to the coronal suture; their bases being near and parallel to the base of the skull. The coronal suture itself was the seat of a rent of the bony and semi-cartilaginous tissues, nearly to its whole extent.

The rest of the body showed no indication of injury; or, of having been the seat of any previous disease, the whole of its tissues, so far as we examined them or could judge, being of a normal character; though rather of a pale colour; a circumstance obviously to be accounted for, from the amount of blood extravasated in the integuments, and adjoining parts of the head.

Having so far concluded our examination of the child's body, one of our number accompanied Mr Morrison, the procurator-fiscal, to the shaft of the coal-pit; which was found to be on fire, and emitting dense, somewhat fuliginous, hot vapours. We did not ascertain the temperature of the pit, not having a thermometer with us, and simply learned that it was seven fathoms, or forty-two feet in depth, and that there was a separate entrance, opening at some little distance, for the workmen obtaining admission into the coal workings, as they did not care directly to go down the shaft, and that even through this side passage there was difficulty and risk enough in reaching its bottom.

The pit is situated immediately below the Drumcarro Craig, and being thus far, we could not refrain from making a short run to the top. This place is remarkable for being, with insignificant exceptions, the farthest north and east boundary of the Scotch coal fields. It is situated south of a straight line, nearly midway between the

Guard Bridge and Cupar, and commands a magnificent view of the interior of the county of Fife, as well as the Sidlaws and more distant hills in Forfarshire. Den Head, Largo Ward, Ceres, Craigrothie, and other places, where the relatives of the person, of whom we understood the police-officers were at that moment in search, lie all grouped around within a few miles compass.

By the time we returned from our short excursion, the active agents of our police establishment had secured the person of the supposed criminal. We saw her sitting in an open carriage, and thus had an opportunity of observing the appearance of the unhappy woman on the spot. She was respectably dressed, rather good looking, of a composed demeanour, and sat without much apparent emotion, and with scarcely a varying expression of countenance, as if in a reverie or intense fit of abstraction. She was sent to the prison at Cupar to await her trial.

The medical gentlemen who had been thus employed, were requested by the authorities to send in a report. They agreed to, and sent in, the following soon after:—

THE MEDICAL REPORT.

Cupar, 30th August 1855.

We this day, under the authority of the Sheriff of Fife, proceeded to Drumcarro farm-steading, to examine the dead body of a child.

The body was apparently that of a well-formed female child from five to six months of age. The integuments of the head were swollen and discoloured, and the exposed parts of the arms were also discoloured; and all those parts unprotected by the clothing, were denuded of their cuticle, as if scorched or scalded, through the application of some heating process. It presented no other signs of decomposition.

There was a marked flattening of the forehead and face over the left eye; the parts there being blackened by dust and gravel, adhering to, indenting, and penetrating the skin. The back parts of the wrists were blackened in the same manner, and more especially that of the left arm.

We found, on dissection, a large effusion of blood immediately under the scalp. The skull was fractured, or rent open, in several places, but more especially in two triangular spaces towards its base, one behind each ear; and at the seat of one of these fractures—that of the right side—the *dura mater* itself was ruptured, so as immediately to expose the brain.

The rest of the body appeared to be uninjured, and indicated a previous state of good health.

It is our opinion that the injuries of the brain referred to, would be occasioned by a recent fall from a height, and that they were to such an extent as would cause death shortly after their infliction.

This we certify on soul and conscience.

(Signed) Robt. Wiseman, *Surgeon.*
Chas. Grace, *M.D.*

The amount of medical testimony contained in the foregoing report may be comprised under three heads—

1*st*, As to the sex, condition of the body in respect of development, and age of the child.

2*d*, As to the cause of death, the recent occurrence of the violence, and its sufficiency in amount to produce an almost immediate extinction of life.

3d, As to another cause of violence, incidental in its effects, and not stated to be immediately involved in the production of death.

With respect to the first of these heads, or affirmatory statements of the report, the age of the child is the only point admitting of any latitude of opinion. The weight, size, and appearance of the body, together with the circumstance of the child's having cut two teeth, and two only, were held as sufficient grounds on this point.

As to the second head, That death was occasioned by a fall from a height, the flattened state of the forehead and face, and the occurrence of coal-dust and minute pebbles, not merely adhering to, but driven in, so as to penetrate the integuments, together with the damage to the brain and its containing organs, were held as circumstances inexplicable upon any other supposition. Moreover, that the injury was of recent infliction was shown by the absence of any putrefactive process having taken place in the body.

With respect to the third head, or incidental cause of violence—viz., the scorched or scalded state of the integuments on the uncovered parts of the body, it was held that the appearances indicated the presence of some heating process, which may have been applied during, or subsequent to the fall, and its action thus continued after death, as the fall itself must have occasioned the almost immediate extinction of life. We neglected to make that minute or somewhat microscopical examination of the burned parts, such as would have enabled us to determine whether or not the child had been burned sometime before death, or previously to its having been cast into the pit.

The next stage of the proceedings was the precognition of the medical witnesses. The following declarations were emitted by them :—

Copy-Declaration of Drs Grace and Wiseman, in precognition against Elizabeth Scott or M'Intosh, 1855—

CHARLES GRACE, Physician in Cupar.

On Thursday the 30th of August I went to Drumcarro, along with Dr Wisemann, and examined the body of a female child, which was produced to me by the grieve at that farm. We have furnished a report as to that examination, to which I refer.

(Signed) CHARLES GRACE, *M.D.*

ROBERT WISEMAN, Surgeon, residing in Cupar.

I concur with Dr Grace, and refer to our joint-report.

I saw the coal-pit where the body of the child was said to have been found. There was a smoke proceeding from the pit, which showed that there was fire in it. The smoke was full of gas, which of itself would soon destroy life; but I am of opinion that the cause of the child's death was from the fractures of the skull, which must have produced instant death.

(Signed) ROBT. WISEMAN.

There are a few points in the foregoing details which admit of a little farther elucidation, and which may serve to make more plain some matters already adverted to. The depth of the pit we have seen to be seven fathoms, or forty-two feet; and supposing the child to have been thrown from its mother's arms, the fall must have been at least forty-five feet—call it forty-eight feet. But as falling bodies descend at about the rate of sixteen feet in the second, and considering the acceleration, or increase of the velocity during the descent, the child would occupy only about two seconds of time in falling. Now, as there was no outburst of flame in the pit, while the atmosphere was such that the workmen could remain in it for a short time, it is shown from this consideration alone, that the burned appearances on the body must have been produced subsequent to the damage of the brain, and thus, with great probability, subsequent to the death of the child.

Again, we have seen that the weight of the child's body was estimated at from fourteen to sixteen pounds—call it fifteen pounds; and as the velocities of falling bodies are proportioned to the square of the distance, and the momentum or impetus acquired by them is generally estimated by the product of the velocity and mass of the body, if we call the acquired velocity at the end of two seconds four, the final impetus or momentum of concussion will be equal to sixty pounds. We thus see that a force of sixty pounds, bating a little for the breaking of the fall by the circumstance of the intervention of the wrists, when applied to the head of a child, five months of age, is sufficient to flatten the head, fracture the bones of the skull, and burst open the *dura mater*, but not necessarily produce a disruption of the scalp.

As to the direction of the force, after its application to the head, it will be observed, from the appearances stated in the report, that the child must have alighted in a somewhat oblique manner, on the forehead, and partly on the face, of the left side. Now the disruption of the *dura mater* was on the right, or opposite side of the head. From the flexibility of the bones of the head, it is obvious that the brain would be forced in by the fall, so as to burst open the sides of the skull at the squamous plates of the temporal bones, and to produce the fractures mentioned towards their respective bases. Part of this force might be due to the spring in the bones themselves; but from the fact of the rupture of the *dura mater* on the right, or opposite side of the head; while on the left, or corresponding side of the head, to the first damage done by the fall, that membrane was not torn open; it is shewn that here the force must have exerted its greatest energy. We thus see that, from the obliquity of the application of the force, in respect of the mesial plane, the right side of the head was naturally in the main line of its direction, and that the force itself was propagated directly through the brain.

The professional reader will be here, perhaps, apt to ask himself, considering the state of the atmosphere of the pit, whether any value can be referred to that element, in inducing an asphyxiated state of the body, and thus aiding in the destruction of life. On the smallest consideration, however, this element will be reduced to zero in the scale of value; and the body certainly did not shew any unusual signs of the presence of asphyxia; although it is but fair to remark, that the state of matters with respect to the heart was not inquired into. Indeed, this could be of no consequence, as asphyxia, whether beginning at the brain, or beginning at the lungs, produces here very much the same result, and in the present case the suspension of the functions clearly arose directly from the damage done to the brain.

But, besides all this, the ecchymosis of the face, and the clotted blood covering the bones of the cranium, being both products of vital action, shew that the child must have lived after the fall, and that it therefore had not died or been killed, either in the course of the fall, or previously to its being cast into the pit. It should be borne in mind, however, that the capillary actions continue for some time after the cessation of consciousness, and even for a considerable time after the total cessation of the action of the heart; and that the term death, therefore, has separate and distinct meanings, according as we refer to the final cessation of consciousness—the cessation of the action of the heart and respiratory process, or the cessation of the actions of the capillary system.

The prisoner having been committed, the medical gentlemen were requested by the authorities to visit her occasionally in prison. She was seen by them there frequently, both prior and subsequent to the time when served with her indictment to stand trial on the charge of murder. As these visits were paid at the respective convenience of the medical gentlemen, they frequently took place at separate hours. The prisoner appeared perfectly calm and collected; her pulse natural, steady, and regular. She took her food well, slept well, and, in short, was apparently in the enjoyment of very good health. On two occasions only since her lodgment in the prison did we observe a passing and slight agitation in her manner. One of these was on the morning after she had been served the night before with her indictment; the other was on some allusion having been made as to her motives for killing the child, when a lurking tear found its way into the corner of the eye, but soon again vanished. She was sensible and composed; without the slightest affectation of manner; distinct, discreet, and modest in her answers; not volunteering remarks on matters unasked, but, at the same time, she sought to hide or conceal nothing. Of course the medical gentlemen had no wish to pry into her secrets, considering their professional duties already sufficiently multifarious and onerous, and that it was enough for them to make the best they could of matters falling within their own proper sphere of observation, without assuming the functions either of confessors or police officers. Two questions were broached to them, however, and both of these they felt it their duty to answer in the negative. The one was, whether they could detect in this woman's appearance any symptoms of insanity; the other, whether she was in a state of pregnancy, as she seemed to believe herself to be. The opinion given on the latter point was made up on the following grounds:—1st, On its unlikelihood, considering she had been so recently nursing; 2d, The absence of any uterine tumour or perceptible enlargement; and, 3dly, Because the uterus was in a state of comparative relaxation, its mouth admitting the insertion of the point of the finger.

The woman's legal agents seemed to be perplexed enough what to make of her; she would not even consent to plead not guilty. She seemed to have a theory of her own wickedness being the cause of her crime, and that she deserved to be hanged for it; and scrupled much on the point of going to the scaffold with a lie in her mouth. She was "so provokingly honest, in telling everything to everybody," that they could not see what line of a defence to make; and they became more and more appalled at the aspect of the case, seeing they could neither obtain certificates of insanity nor of pregnancy to give hope of an acquittal.

Neither did this unfortunate woman, appear to be without a tolerably strong dash of natural goodness in her composition. She spoke without bitterness of her father-in-law, whom she nevertheless blamed much for his harshness of treatment of her; and with leniency and kindness of her husband. She told the story of her first mishap, and of her courtship and marriage, and bating those particulars in which she took blame to herself, no one could say but that, under the circumstances, she had acted in the matter very sensibly and judiciously.

The prisoner was tried at Perth by jury, before Lords Handyside and Cowan, on Wednesday 3d October last.

A special defence of insanity was pled by the counsel for the prisoner.

Evidence was led as to her emitting a voluntary declaration of her guilt and as to her state of sanity when she did so.

The finding of the body of the child, about three o'clock in the afternoon of the 29th August last, was next substantiated.

A lad Ritchie deponed that, he was at the Guard Bridge with a cart about four or five o'clock in the afternoon of the 28th August, when he saw the prisoner with a child in her arms coming out of the railway station there; that she asked him for a ride, and he gave it to her. She said she was going to Colinsburgh, and when near Den Head, asked him where he was going. She next asked if *Robert Hains wife had any children.* He said none. She asked if the ironstone was wrought on the east or west side of the road. He said it was wrought only on the east side. She next asked what was working at the south side of Drumcarrow Craig, and was told that it was coal, but that the work had stopped a *whiley*, because it had gone on fire, but he thought it was commenced again. She left him at the top of the road, and went to a planting in the direction of Drumcarrow coal-work. He heard next day that a child had been found in Drumcarrow coal-pit. This child he recognised as the woman's child, and pointed out the prisoner to Brown the policeman. Cross-examined. She told him she came from the Sidlaws, and pointed to the hills over in Forfarshire, and said she staid on the opposite side of Dundee. She seemed to be kind to the bairn. It was asleep in her arms part of the way. It awaked up, and she spoke to it quite kindly. Thinks the place where she left was about three miles from the Guard Bridge;

the road leads from thence to Largo Ward and Colinsburgh. She said she was going there to see her friends. She gave him the child to hold, as she was getting into the cart, and it seemed to be quite well. The prisoner appeared also to be quite well.

Margaret Spence deponed, that she saw the prisoner on 29th August (q. 28th), with her child in her arms walking backwards and forwards on the road between Drumcarro and the coal-pit; about half a mile distant from the pit. It was about five o'clock or in the "gloamin," before it got very dark.

Isabella M'Intosh, the prisoner's step-mother, deponed that, the prisoner came to their house at Largo Ward on the 28th August last, about eleven o'clock at night; the distance from Drumcarro is about four miles. She had no child with her, and appeared sorrowful-like when she came in. The deponent asked her about her child, and where it was. She said it was dead, and died the week before of its teething. The prisoner was married to a person of the name of Scott. The child was said not to be his, but one Henderson's. She knew all that, and asked if her husband had buried it decently, and she said he had. The prisoner appeared quite collected, and spoke quite rationally, and appeared to be in her sound senses. She staid that night, and went away next morning to pay a visit near Cupar, and came back again that night about eight o'clock. She saw a white worsted-hood in her pocket. This circumstance led her to speak again about the child, and two or three times after she said it died in the first of the week. Deponent asked if her child was dead, how she came to have a hood, and she said she got it in a present in coming through Dundee. She declined speaking much about the child. Deponent had no suspicion that the prisoner was insane, nor ever had any such suspicion, although she has known her a good while. She remained with them on Wednesday night, and went away about six o'clock on Thursday morning. Cross-examined. The prisoner lived for sometime in her house, about two years ago. Deponent has a family of children, and the prisoner was always very kind to them. On her last visit she brought a present to the children.

Robert M'Intosh—The prisoner is my daughter. She had a child some months ago, which was understood not to be her husband's—I had a letter from herself to that effect. There was an arrangement attempted about the child. She said to me—"Father, never you mind anything about the child; my husband and me understand each other." This conversion took place about the 8th or 9th March last. At an aftertime, the father-in-law said to me that he thought they were to be the better of Elizabeth (the prisoner), but instead of that, in consequence of the child, they were worse. My daughter never at any time spoke to me of any displeasure between her husband and herself regarding the child. I remember my daughter coming to my house on the night of the 28th of August last. It was between ten and eleven o'clock at night. My wife asked about the child, and my daughter said it had died seven or eight days before. I asked if it had been long badly, and she said only a day or two. She seemed to be sorrowful, but after hearing of the death of the child, I passed it over. She did not seem so collected as formerly, but I did not think anything of it. I felt for the prisoner, and had but little conversation with her that night. I went with her next morning to Ceres. It did not then occur to me that she was out of her mind, but she was melancholy-ways, and sometimes I had to put a question to her more than once, before I got an answer. And the way home at night again it was the same. Except what I have mentioned, I never at any time saw any reason to conclude she was out of her mind.

Elspeth M'Intosh—The prisoner is my sister. She visited me at Craigrothie on the 29th of August last. She appeared to me to be quite in her right mind.

Mary Scott or Cant—I am sister of John Scott, who is married to the prisoner. She had a child born in March last, which was understood not to be my brother's. I do not know if that child was ths cause of any displeasure between my brother and his wife. I saw the prisoner on the morning of the 28th of August last. She asked me for my laddie's hood, as she said she was going to put it on her lassie, as she was going to her father's in Fife. [Identifies the hood as hers, and knows the clothes shown to be those of the prisoner's child.] On the morning referred to, the prisoner seemed to be quite well and collected; the child also seemed to be quite well.

James Brown—I am police constable at Leuchars. Saw the prisoner at the railway station there on the 30th March. I asked her if she had a child when on her way from Guard Bridge to Denhead—she answered No. This was about nine o'clock, A.M., on Thursday the 30th. She said her child died last week. She spoke quite rationally, but she was flurried and her face flushed. I did not think she was insane. Her voice stammered a little. I was in my uniform as a policeman. I took her to the station-house, and then she asked to speak privately with me. I took her to my own house. She then said she would be better to tell the truth—and she then told me that she had put her child down one of the Drumcarrow pits about nine o'clock on the night of the Tuesday before. On my asking her reason for doing so, she said she did not know. I asked her if there was any disagreement between her and her husband about the child, and she said she thought there was a disagreement on account of the child not being his, as he never recognised it as belonging to the family. She also said there had been an action against the father of the child, but it had never come to any bearing. She merely made that statement, without giving it as any reason for throwing the child into the pit. She appeared to be in her sound mind while making that statement. I had no reason to think otherwise.

Cross-examined—The prisoner seemed to be more overpowered by her feelings, and more excited while speaking about her child than at other parts of the conversation. She said she had no reason for what she had done, unless her own wickedness was the reason.

Robert Adamson, superintendent of Fifeshire police—The prisoner made a voluntary statement to me, that she had thrown her child down a coal-pit on the Tuesday. She said there was no one to blame but herself—it was her own wicked heart. I had to take her to Drumcarrow, and she pointed out the pit to me. I had no reason whatever to doubt the prisoner's sanity while making her statement to me. I saw no symptoms of anything like insanity.

Grant Sutherland, police constable, deponed to getting possession of the body of the child from Andrew Porter at Drumcarrow.

Dr Grace deponed to the truth of a medical certificate, of 30th August last, drawn up by Dr Wiseman and himself. He did not observe any symptoms of insanity in the prisoner. He saw her twice or thrice a-week since her apprehension.

Dr Wiseman gave similar evidence regarding the medical report; and as to his belief that the prisoner was not insane.

This closed the evidence for the Crown; and the prisoner's declaration was then read. It contained a full confession of having thrown her child into the coal-pit. The reason the declarant assigned for the commission of the crime was that the child not being her husband's, he would not support it, and the action for its aliment against the father not being settled, she had no means of her own enabling her to maintain it.

John Morrison Milne, writer, Forfar, was adduced as an exculpatory evidence. On being questioned he said—I was waited upon in spring by John Scott of Bonnytown of Auchterhouse, husband of the prisoner, with reference to raising an action for aliment of a child, said to be one Henderson's. Scott gave authority for that action being raised. He called on me either two or three times regarding that action. His wife was with him the first time, and the two seemed in good terms. No decision in the case has yet been come to.

The Jury having retired to deliberate, returned into Court, after an absence of about twenty minutes, with a verdict unanimously finding the prisoner guilty as libelled, but by a majority of one, they agreed to recommend her to mercy.

Lord Cowan said it was usual, and indeed desirable, in such cases, for the jury to state the reasons upon which their recommendation proceeded; if they would do so in this case, the clerk would record it for the consideration of the Crown.

The Chancellor of the Jury said, that the reason of the recommendation given by the majority of the jury was, that the child would likely be a cause of disagreement between the prisoner and her husband.

Mr Lochtie of Leven—one of the jurymen—further explained the reason to be, that the majority of the jury regarded the crime as not proceeding from any ferocity of temper, but from the prisoner considering the child as a living evil in the family, and sure to give rise to constant quarreling.

The verdict ultimately recorded was—the Jury unanimously find the pannel guilty as libelled, but by a majority of one recommend her to mercy on the consideration that the motive which led her to the perpetration of the crime was, that the existence of the child was a living cause of quarrel between her and her husband.

Lord Cowan, after a suitable address, read the following sentence :—

The Court decerns and adjudges the said Elizabeth M'Intosh or Scott to be carried from the bar to the prison of Perth, and from thence to be forthwith transmitted, under a safe guard, to the prison of Cupar, therein to be detained, and fed on bread and water only, until the 30th day of October current, and on that day betwixt the hours of eight and ten o'clock forenoon, ordains the said Elizabeth M'Intosh or Scott to be taken to the common place of execution in the burgh of Cupar, or to such other place as the magistrates may obtain, and there by the hands of the common executioner, to be hanged by the neck until dead, and ordains the body to be buried within the precincts of said prison. And may the Almighty have mercy on your soul.

The prisoner maintained her composure during the early part of the trial, although she never looked up, but as it drew to a close she grew violently agitated and trembled very much. She had physical strength sufficient, however, to enable her to stand up during the time the judge addressed her, and pronounced the sentence of the court.

In looking over the preceding details of evidence, with the view of finding some clue as to the state of mind of the prisoner, it would seem probable that she came over to Fife with the full determination of disposing of her child in some manner; but that she had not, up to the time of her arrival at Denhead, fully determined what to do with it. Her inquiries at the lad Ritchie, as to whether Robert Hain's wife had any children, would seem to indicate, that she was then considering the likelihood of there obtaining an asylum for the child. Her questionings, on the other hand, as to the state of the mineral works in the district, would seem to betray, that the fearful alternative which she latterly resorted to was then also brooding within her. She arrived at Denhead at five o'clock, and, according to the evidence and her own confession, it would appear that the deed was perpetrated at nine o'clock in the same evening. During that interval of four dreary hours, the criminal must have felt many anxious misgivings. Were she to call on Robert Hains' wife, and fail in her object, and afterwards have recourse to the murder, she would see that the chances of her immediate detection were greatly enhanced thereby. Unfortunately she did not call; as, whether she had succeeded or not, it would in all likelihood have put an end to that night's catastrophe, and might have introduced another chain of circumstances conducive to her infinite relief and subsequent comfort and well-being.

Another matter which strikes one, on looking over the legal evidence, is the perfect candour with which the prisoner's nearest relatives give their testimony, on this, to them, most trying of all human occasions. The killing of baby Henderson, bad as that was, appears to us a mere nothing, compared with the redeeming qualities of character, the unswerving honesty, and genuine home sympathies of these people. But let us hear again Robert M'Intosh, the woman's father, and observe what he says of the old churl on the north side of the Tay. He says, " At an aftertime the father-in-law said to me that he thought they were to be the better of Elizabeth (the prisoner), but instead of that, in consequence of the child, they were worse." Now, what right had this father-in-law to anticipate, or speculate upon, any bettering of *his* circumstances, through the marriage of his son. " Elizabeth," we have no doubt, did her best " to keep the house snod, and make things right among them;" but the *Old Stick*, that piece of *crab-wood* of the *Sidlaws*, it would seem, according to the prisoner's account, loved his potations, and too often gave way to a most outrageous liberty of speech against the poor woman, in which attacks he unfortunately sometimes got the others to join him; and was not this enough to have produced a very great amount of distraction in a person, perhaps, naturally disposed to indulge in self-accusatory feelings, although by no means of a melancholic temperament? We have no doubt it did so.

We intended to have concluded this paper with a very few general remarks on the vexed question of moral insanity. The question is confessedly a difficult one. The difficulty is not as to the existence of such a disease; unfortunately there can be no doubt on that point; but as to whether it can, and by what symptoms, in all cases, or in its essential features, be contradistinguished, in the outward actions it gives rise to, from crime. In other words, whether there is a pathological condition of the nervous and circulating systems, out of which insane actions arise; and on the other hand, a physiological condition of it, out of which criminal conduct may take place; or whether the same conditions of the nervous and circulating systems are not frequently present in both cases, whether we call these conditions physiological or pathological; so much so, as to identify, in a great measure, the categories of actions respectively referred to crime and insanity, and to shew that they are generally mere modifications of conduct, and often accidental modifications of each other; the shape they ultimately take, being very much dependent on the circumstances in which the individual happens to be placed. And, it should be observed, moreover, that such conditions are not, generally speaking, with the exception of certain inflammatory processes and their results, *established conditions*—unless, indeed, we were to adopt the palpable grounds which the phrenologists allege, made out by the anatomist—but rather inferred or hypothetical conditions had recourse to, in order to account for existing phenomena.

Warned, however, by the already too great length to which the report of this case, and our remarks upon it, have extended, we here take leave of the matter for the present; and before doing so, have only to express our satisfaction that the unfortunate individual whose situation has given rise to these observations, has, through the clemency of the Crown, received a commutation of her sentence to *banishment for life*.

ARTICLE III.—*On the local treatment of Erysipelas with Gutta Percha.* By G. HAMILTON, M.D., Falkirk.

IN the spring of 1851 I had been trying some experiments on myself and others, as to the influence which the exclusion of air exerts on the healing of ulcers, wounds, and burns, and was particularly struck with the fact that, when this can be effected thoroughly, the healing process goes on without almost any pain being felt in the parts. For example, I let fall, on the back of my thumb, a drop of burning wax, and immediately afterwards excluded the air from the part by applying gutta percha paste, and covering it with gutta percha tissue. By carefully renewing this at short intervals, when it became detached, a deepish slough separated, and the wound rapidly healed, without giving me almost any uneasiness, and without any inflammation taking place round the wound. In June of the same year, I had under my care a case in which there were two small spots on the forehead, above one eyebrow, where the skin was broken, and in which an intense burning pain was complained of. Erysipelas had also extended from these spots to the eyelids and cheek, and slightly upwards to the head. I applied the gutta percha, as before, to the parts, and was gratified to find that in about an hour afterwards the pain was completely relieved. By continuing the plaster for three or four days the wounds healed without pain, and the erysipelas, at the same time, rapidly disappeared. This case immediately suggested to me the feasibility of trying its effects in other cases of erysipelas; and the following was the first that occurred:—

June 28.—Wm. Laird, nailer, aged 69, has had erysipelas of the leg for several days, but has not been obliged to desist from working until to-day. The erysipelas now extends from the upper part of the calf to the ankle, all of which is considerably swollen, while the portion on the outside and middle of the leg is of a dark red colour, and looks as if it would go on to suppuration. States that it has been very painful, and has throbbed much during the night, and still continues so. Applied gutta percha plaster and tissue, and ordered him to keep the bed. Before I left the house, and while the leg was still in the depending posture, the patient said he thought the throbbing was much lessened.

29th.—Out of bed when I called. Says the pain and throbbing are quite gone. The redness is certainly much decreased, and though the swelling remains about the same as yesterday, he can now allow the leg to be pressed in every direction without complaining. Applied a bandage over the plaster, and ordered him strictly to keep the bed.

30th.—Quite easy. Says, "You may beat upon it like a drum, and give no pain." The bandage was worn for a short time, and the leg gave him no further trouble.

The rapid recession of the erysipelas in this instance, and the unexpected escape of the portion referred to from subsequent suppuration, encouraged me to follow a similar practice in other cases, of some of which I shall now give jottings.

March 10.—Mrs Ure, aged about 60, a weakly person, has had erysipelas of the leg for a week. The leg is at present red, painful, and very much swollen from a little below the knee to the ankle, on the inner and also on the outer side of the leg. Immediately above the ankle, especially, it is tense and painful. Has been dusting with flour, but states that she has felt no benefit from it. Applied gutta percha, and bandaged gently.

11th.—Considerably relieved. Took off, and re-applied bandage. No extension of erysipelas.

13th.—Has been bandaged daily, and continues pretty easy, but has been sitting up, and, in consequence, the swelling threatens to increase. To keep the bed.

15th.—Took off gutta percha. Erysipelas gone from all the limb, except in one portion above the inner ankle, which is hard and hot. Ordered a poultice to this for twenty-four hours, and then the leg to be re-bandaged.

18th.—Quite easy, and sitting up. Inflammatory appearance gone, and swelling greatly abated.

Gutta percha and bandaging were here used together, so that it is impossible to say whether the relief, which decidedly followed their application, was to be ascribed to the one or to the other, or to their joint influence. The application of the poultice, also, to the portion above the ankle which had a phlegmonous appearance, complicates the treatment. Still the treatment, as a whole, was very satisfactory, and, again, a portion of a limb did not run on to suppuration, where the danger of doing so appeared to be imminent. In the following case, the effect produced by the gutta percha alone can be more clearly estimated :—

Aug. 7th, 11, A.M. —— G——, aged about 30, has felt pain in her right leg, in which there are large varicose veins, for four or five days. It has now, from the inside of the ankle to the knee, an extremely angry and suppurating look, so much so that the woman and her friends fully expect that matter will be formed. The whole of the leg is much swollen, and the inside of the calf, especially, is tense, red, and tender, one portion feeling even hard to the touch ; and the woman complains of it as being throbbing and very painful. Applied gutta percha over the whole leg, but did nothing else, not even restricting the patient from walking about. 8, P.M.—States that when she has kept the leg on a chair she has been free from pain, but that she still feels pain in walking. Bandaged above the gutta percha from the toes to the knee.

8th.—Has slept well, and has not felt any throbbing, as on previous nights. The only pain now felt is when pressure is made on the hard portion on the inside of the leg. The swelling is also much diminished. A slight extension of phlebitis took place upwards (the saphena major evidently being involved in the inflammation of the calf of the leg); but in three days after this, when the gutta percha was removed, the whole of the leg which it had covered was found quite easy and free from inflammation.

These cases present the nearest approach to the phlegmonous erysipelas that I have met with since 1851, and I cannot, therefore, say more as to the applicability of this mode of treatment to that variety of the disease. In such instances as these, and in milder cases, where the extremities are attacked, the gutta percha, combined with bandaging, seems to me to yield more satisfactory results than dusting with flour, fomenting, puncturing, or indeed any other means of cure usually applied to such forms of this affection.

Bandaging, however, was used for the most part conjointly with the gutta percha, and it may, therefore, be thought that the former was the principal and effective, if not the only agent in the cure.

That such was not the case, the following examples of the disease, treated with gutta percha alone, will, I think, go far to prove.

June 8.—Mrs Malcolm, aged 75, has had erysipelas of face and head for three days, to which tow and flour have been applied without any relief. Pulse nearly natural. As this case seemed a mild one and declining, I did not, at first, apprehend that it would be necessary to interfere with the treatment being pursued, and therefore allowed it to be continued.

9th.—The left ear, left cheek, and root of the nose, are more red and painful than last night; the cheek, especially, is very much complained of. The patient says it feels as if it were "beeling." Gutta percha was applied on the parts affected. Before I left the house the old woman expressed herself relieved, and when I called in the evening she was out of bed and sitting up, apparently quite easy. She heartily shook hands with me, thanking me for the ease I had given her, and saying that in less than half an hour from the time the gutta percha was applied the relief was complete. Nothing else was required.

Although this on June 8th was apparently a slight case, yet the symptoms on the next day had become more acute and threatening, and, with a patient at 75, we know how grave are often apparently slight attacks of acute disease. To procure such a result as followed, must, therefore, be considered important and satisfactory;

while the rapidity of the relief given to the painful symptoms, distinctly connects this with the curative agent employed.

On March 1, Wm. Watson, aged 61, got a slight excoriation on the nose, which on the 3d became painful and inflamed. I saw him on the 4th, when nose, forehead, and most part of both cheeks were slightly erysipelatous. As this again seemed a slight case, chamomile fomentations were ordered. I did not see the patient till 6, P.M., on the 5th, when I was informed that the fomentations had done no good, and I found that flour had been dusted on the face and forehead since the morning. The erysipelas had now become much more intense in its symptoms than on the 4th. The patient was restless and slightly delirious, and the pulse was above 100, full and hard. Applied gutta percha.

6th.—States that the plaster smarted considerably after having been applied, but that, in about five and a half hours after its application the pain ceased, and that the face is now quite easy. The threatening general symptoms are now also removed, the skin being cool and the pulse natural.

7th.—Not quite so easy as yesterday. Pulse 88, and rather hard. Erysipelas has extended to right ear. Applied to it the gutta percha.

8th.—Quite easy again, and pulse 80 and soft.

9th.—Convalescent, but weak. Some of the plaster has come off the face, and the skin is seen to be now quite natural in its appearance. This case seems fairly to show the superiority of the gutta percha to fomentations or the dusting with flour; for, while the latter gave no relief, the former did so in a few hours. The aggravation of the symptoms, also, when an extension of the disease had taken place, and the control exerted over these by a repetition of the treatment, are worthy of notice. In the following case, no extension of the disease occurred, and in it, as will be seen, the relief given by the plaster was immediate and complete :—

June 20.—Mrs Miller has rather severe erysipelas of the whole face and forehead. Applied gutta percha. Within an hour all uneasiness in the parts had ceased, and in four days, when the plasters were removed, the skin was found nearly natural in appearance and to the touch.

In the next case, the first part of the treatment was not under my care, the child, eighteen months old, having been treated, as the parents stated to me, by another practitioner, principally with fomentations, for a fortnight before I saw it. When I visited the little patient on March 12, the symptoms seemed to me very serious. The child appeared much distressed and exhausted, the pulse was vibrating and very quick, and the erysipelas extended over the forehead and the left and most of the upper part of the head. It had originally, I was informed, begun near the right ear, and had extended over the head. Had the head shaved, and applied the gutta percha over all the erysipelatous portion.

13th.—Child greatly relieved. Has rested moderately well, and now seems lively. The parents, who were yesterday very much alarmed about the child, think it greatly relieved, and it certainly seems so.

14th.—Erysipelas has extended on left cheek, but, nevertheless, the patient stated to have spent a good night. Covered extension with gutta percha.

15th.—There is a very slight extension of the disease on the left cheek, which I covered as before, and the mother states that she also covered a threatening portion behind the left ear last night. The child now seems quite easy.

16th.—No extension of the disease. Gums a little troublesome. Scarified them. No further treatment required.

This appears to me a very striking case, as well from the state of the patient when I was asked to undertake the treatment, as from the immediate relief which took place, as far as I could judge, simply and entirely from the application of the gutta percha. On the 12th I considered the case most serious, and yet, within twenty-four hours afterwards, the child seemed almost entirely out of danger.

The following is another case of smart erysipelas of the head and face:—

January 7.—Mrs Buchan has erysipelas of face and sides of the neck, in which very severe pain is felt, and to which gutta percha was applied.

8th.—The severe pain felt yesterday was completely eased in about two hours after the plaster had been applied, and the pain is now quite gone. The erysipelas, however, is extending to the ears and head, and these parts were covered as before.

10th.—Erysipelas has extended over part of the head. Head to be shaved, and the plaster applied.

11th.—Nearly the whole head is now involved, and has been covered with plaster. The plaster on the face was to-day removed, and the skin was found nearly natural, except in small portions, which were slightly indurated. I did not see the patient again until the 14th, when she was convalescent. She resided in the country, and I found it convenient to leave some of the plaster, in order that it might be applied whenever any extension of the disease took place.

The next case is valuable in so far as the patient affected had formerly been attacked with the same disease, and was thus able to compare what he had previously suffered with the effects produced by this mode of treatment.

Mr B., aged about 60, was seized with erysipelas of the face on Nov. 16. It had extended also to the forehead, causing throbbing and considerable uneasiness, on Nov. 18, when I first saw him and applied the gutta percha. On Nov. 19, Mr B. (who is a most intelligent gentleman, and to whom I explained that I was experimenting with the gutta percha, and that I wished him to attend particularly to its effects) mentioned to me that the plaster had not been applied an hour when the throbbing and uneasiness in the face and forehead ceased.

19th.—To-day there is a slight extension of the disease upwards to the head, which is well seen, as this gentleman is bald on the upper portion. Again applied gutta percha with like relief.

20th.—Erysipelas has extended to behind left ear and to the neck. Applied gutta percha with relief as before.

21st.—Slight extension of the disease towards the top of the head, with uneasy feelings, which were again subdued as before.

On the 24th all the gutta percha was taken off, and all the skin was found in nearly a natural state, and quite free from any redness.

This gentleman, who had been in a rather delicate state of health previous to the present attack, speaks with the greatest confidence of the relief he received from this mode of treatment, compared with fomentations, etc., which had been employed in his former illness. The pulse was never very much disturbed in this instance, even though the amount of surface ultimately involved was considerable, and I have noticed the same circumstance in other examples similarly treated. The explanation of the fact will probably be found in the disease being rapidly subdued in each part as it becomes affected, and thus at any one time only a small portion being allowed to produce its effects on the general system. It seems to me that the following exemplifies this point well :—

Nov. 3d.—Mrs Dunlop, aged about 45, has a smart attack of erysipelas on the right side of the face, ear, and forehead, and has been fomenting it with flor. anth. nob. for three days, but without subduing it, or preventing it spreading. She complains of its being very hot and painful. Dressed with gutta percha, and encircled the affected parts with wet lunar caustic.

4th.—Parts covered have been quite easy. The erysipelas has, however, passed the lunar caustic mark, and has extended on the forehead and face. Covered with gutta percha.

6th.—Has been again quite easy in the parts covered, but the disease has, since yesterday, extended to the left ear, and the whole of the side of the face and chin, all which are very hot and painful, and the patient has been anxiously waiting for my visit to have them again covered, when, as before, immediate relief was given. On the 8th she was convalescent.

This patient states that the application of the gutta percha paste to the right cheek produced at first considerable smarting, but was not felt so much on the other parts, and explains this by noticing that on that cheek the cuticle had slightly given way. She stated that, on the other parts, the burning heat of the erysipelas was usually gone in about half an hour after the gutta percha had been applied, and I noticed, on each day after the application, that the parts covered felt soft and natural, and that they could be touched without giving pain. Notwithstanding that each extension looked very angry and was exceedingly painful, the pulse, in this case also, continued throughout to be very little disturbed. At first I encircled the diseased parts with a lunar caustic line, but without apparently any effect in preventing its extension. In other instances, however, it has seemed to me that this practice has produced some effect; it evidently, however, is not much to be relied on. This woman has had erysipelas of the face six times, and she is, therefore, well qualified to judge of the comparative merits of the different modes of treatment that have been employed. Her opinion is, that gutta percha and puncturing both give very decided relief. I have no doubt she would prefer the former, from giving little or no pain, should she be again attacked.

In the whole of the cases which have been narrated, no other local means of cure were employed besides those which have been mentioned; and, purposely, no internal remedies whatever were ordered. My object in abstaining from the latter has, of course, been, to obtain as much as possible without complication the effects of the gutta percha plaster. The following case was so severe in its character, that I did not think myself justified, as the disease advanced, in withholding the assistance to be derived from the joint internal exhibition of the Tinct. Mur. Fer.

Mary Blackley, hawker, aged 61, became unwell on February 15th, after having been a good deal exposed on a very cold day. Erysipelas showed itself next day on the nose, the mucous membrane of which had been in an irritable state for some months. I saw her on February 19, when the nose and both cheeks were erysipaletous, with small vesicated patches on the left cheek. Fever and pain of face very considerable. Applied gutta percha, with relief to the local uneasiness in about half an hour. Next morning the appearance of the face was satisfactory, as no extension of the disease had taken place, and the parts covered were quite soft, and without pain when touched. In the evening, however, an extension was found to have taken place to the upper eyelids, and to the parts going backwards from both cheeks, to which the gutta percha was applied again with relief. The pulse was 110, skin hot, tongue foul, with great thirst.

21st.—In the morning easier, and no extension of erysipelas. In the evening the erysipelas had extended to the forehead and ears, and under the skin. Pulse 112, hard, and vibrating. Applied gutta percha.

22d.—In the morning easier. Pulse 112, but soft, and other symptoms nearly as yesterday. 10, P.M.—Erysipelas has extended upwards on the whole of the forehead, and slightly to the head; all the other parts easy. Pulse 120, and hard. Applied gutta percha, and ordered fifteen drops Tinct. Mur. Fer. to be taken every third hour.

23d, 11 A.M.—Has got the iron thrice since last night. No extension of erysipelas. Pulse 110, soft. Has got a little sleep, and skin is moist, and altogether seems easier than last night. The parts covered are all easy and soft to the touch. 10, P.M.—Has taken the iron only once since the morning. No extension of erysipelas, free perspiration, tongue moist, pulse 112, soft. Has got hardly any refreshing sleep since she was attacked, until to-day.

24th.—Has had a good night. Pulse 96, and soft. The iron was continued, and in a few days she was convalescent.

In this instance the treatment was complex, and the cure was probably due to the operation of the internal as well as the local remedy. Of course there is no good reason to prevent our employing in conjunction every means of cure we may possess, in serious attacks, when once we have had satisfactory evidence of each exerting, *per se*, a controlling and beneficial influence on the disease.

I had continued my investigations on this subject for a considerable time before I noticed, from the periodicals that come into my hands, that others had been engaged in making experiments similar to my own, with collodion, collodion and castor oil, gutta percha dissolved in chloroform, etc., and I was then gratified to find that the favourable opinion I had formed of this mode of locally treating erysipelas, received from them a pretty general confirmation. Even now, I hope that the cases which have been shortly narrated, selected from a number of others showing equally favourable results, will not be without their interest, as I have endeavoured, as rigidly as possible, to test the value of this remedy. As to the *modus operandi* of the curative agent, I have seen no reason to change the opinion I formed from the first, that it is by the exclusion of the atmospheric air from the inflamed surface, that the relief to the pain, and the other beneficial results, are chiefly if not entirely obtained. The compression exerted by the gutta percha, as I have employed it, seems to me so exceedingly slight, that we cannot, I think, as has been conjectured in the case of the collodion, suppose this agency to have acted with much efficacy. But if it be assumed that the exclusion of the atmospheric air is an essential condition to be attained in the treatment, then that application should so far be the best which most effectually fulfills this object; and none of those I have seen mentioned appears to me to answer so well for efficacy, as well as ease in the application, and economy, as the common gutta percha paste used by shoemakers (naphtha being the solvent), with the gutta percha tissue placed over it, which I have employed. If there be no discharge from the surface, this holds firmly for from three to five days, and, when wished after that to be removed, comes off without difficulty, as a simple plaster. I keep the paste in a little tin pot, having a lid which screws on to prevent the naphtha evaporating, and when I wish to use this I heat it at the fire or gas, take a portion out with the handle of a tea-spoon, and apply it with the finger. I then immediately place over it the common gutta percha tissue, using the thinnest quality where sinuosities of the skin have to be followed, and, for other parts, that which is second in thinness. Discharges from a wound or from the surface interfere with its operation, the plaster becoming detached in a short time. Even under these circumstances, however, it does not appear to act at all prejudicially. Its specific and most favourable effects, nevertheless, seem to me to be produced, when total exclusion of the air can be procured, and, when thus employed, the experience I have had of its action makes me think that it is worthy of considerable confidence, as a means, in conjunction with other remedies, of combatting this frequently formidable disease.

Article IV.—*Cases of Homicidal and Accidental Suffocation, with Remarks.* By Henry D. Littlejohn, M.D., F.R.C.S.E., and Surgeon of Police, Edinburgh.

The following selected cases are recorded, not merely for the interest which attaches to the unusual means employed to induce a fatal issue, but also because they illustrate many interesting points in connection with an important form of violent death. Were other apology necessary, it would be found in my wish, to render available to others the results of the medico-legal investigations which I am officially called on to undertake.

Similar cases, which, along with the present series, have occurred during the first twelve months of my appointment, will, in due time be submitted to the profession.

Case I.—*Impaction of a Cork in the Larynx. Injury to Head and Chest.*

On the 20th of March 1855, I was requested by the authorities to examine the body of a Janet Stewart, in the house of her niece, No. 29, Earl Grey Street, Edinburgh. Mr Tod, surgeon, the family attendant, was, at my request, associated with me. We were told that the death had been sudden, but that, beyond the fact of rumours in the neighbourhood as to the occurrence of another sudden death in the same house some months previously, nothing had come to the knowledge of the authorities which could lead to the suspicion of foul play. Mr Tod also informed me, that he had, on various occasions, treated the deceased for pretty severe attacks of asthmatic bronchitis; and that he believed her health for some time past had become seriously impaired. With these prepossessions we entered the house, and found it in great confusion. We were told that the relatives were much intoxicated; and, accordingly, we were obliged to seek out the coffin ourselves, which we found in a small bed-room adjoining one of the rooms, to the front of the house. The body lay in it, and had been dressed in the usual manner for the grave. A loose piece of white calico, which covered it, was stained here and there with a bloody fluid. On removing the body, some saw-dust, on which the head of the deceased had rested, was found deeply stained with blood.

The body was that of a person about sixty or seventy years of age, of the middle size, and in good condition. The face was pale, and slightly swollen; the features were composed, the eyelids shut, and lips nearly closed; the tongue was observed to protrude slightly from between the gums; the upper and front part of chest, the front of abdomen, the arms and upper-part of both thighs, were emphysematous and crepitated on pressure; the skin generally was pale, with the exception of the back part of the trunk, which presented the usual *post-mortem* discoloration; the body generally was rigid; the hair of the back part of the head was damp with blood, and a lacerated wound, about an inch in length, was found on the upper and back part of the scalp, with considerable surrounding swelling.

On removing the scalp, several loose clots of blood, varying in size from a shilling to a crown piece, were observed over the vertex, and stretching downwards towards the upper and back part of the neck; the cellular tissue in the neighbourhood of the wound, was distended with serum; the right temporal muscle was infiltrated with coagulated blood; the cranium was entire. On removing the brain, a small quantity of serous fluid escaped; the veins on its surface were more distended than usual; the substance of the brain, however, was firm, and apparently healthy.

The chest was then examined. The cellular tissue of the anterior mediastinum, and covering the pericardium, was emphysematous, and its areolæ distended into numerous distinct bullæ; the lungs were collapsed, but crepitated on pressure; along their free margin they were emphysematous, posteriorly they were congested, and from their cut surface a considerable quantity of frothy fluid escaped on pressure; the heart was well contracted, and appeared healthy in structure; both its cavities were unusually empty, containing but a little fluid blood.

The liver was normal in size, but its substance was pale, and easily lacerable; the gall-bladder contained a little straw-coloured bile, and a couple of gall-stones; both kidneys were congested, of a deep-brown colour, and were soft in structure; the bladder was distended with urine; the uterus presented several small fibrous tumours; the other abdominal organs appeared healthy.

On attempting to remove the tongue and larynx for examination, a hard resisting mass was felt impacted at the back of the throat. I at once drew Mr Tod's attention to the fact, and we both concurred, for the moment, in supposing the foreign body to be a piece of bone. The tongue and lower portion of the pharynx were then carefully dissected out, when the obstruction proved to be an ordinary quart-bottle cork, inserted tightly into the upper part of the larynx. The sealed end of the cork was uppermost, and was roughened by the passage of the screw: it was lubricated with frothy brown mucus. The tongue was pale, and the mouth and throat dry; the upper end of the larynx was found dilated, and of a rounded form, which it preserved after being detached from the body, and which corresponded exactly in size to the lower end of the cork. The epiglottis was pushed upwards and forwards, and both it and the larynx were considerably injected. The injection increased as we proceeded downwards, and the trachea, to its minutest ramification, presented a bright florid appearance. The larynx and trachea were coated with mucus of a brownish hue. A chain of glands at the side of the trachea and on the front of the neck, was found of bony hardness; they were loosely attached, however, and did not press upon any portion of the air-passages.

It was now abundantly evident that the deceased had not died a natural death. The external surface of the body was again submitted to a very careful examination, when the left side of the chest was observed to be more mobile than usual. The third, fourth, fifth, sixth, seventh, eighth, and ninth ribs were found to be fractured about their middle. The line of fracture was pretty regular, and there was no displacement superiorly; below, the sixth, seventh, eighth, and ninth ribs were ascertained to have penetrated the lining membrane of the chest to a small extent. From the healthy appearance of the lungs, they had been examined at first *in situ*, and incised, so that when removed on the discovery of the fracture of the ribs, the exact site of any wound in their substance could not be satisfactorily made out. The corpulency of the deceased, along with the rigid condition of the muscles of the trunk, and the absence of any marked displacement of the fractured surfaces of the ribs, may account for the non-detection of these injuries in the first instance.

No time was lost in acquainting the Procurator-fiscal with the results of the examination, and Mr Tod and myself drew up a report, wherein we expressed "our opinion that death had more immediately resulted from the presence of the cork in the larynx, and that this foreign body could not have been placed there by the deceased. The wound of the scalp, and the fracture of the ribs, must have been produced during life, and shortly before death. Neither of these injuries, nor the affection of the lungs, were sufficient of themselves to account for the suddenness of the death, but they must have materially assisted in hastening the fatal result. The wound of the scalp might have been produced by a fall against any hard resisting body, or by a blow inflicted with a blunt heavy weapon. Direct violence could alone account for the injury to the ribs."

On referring to standard works on medical jurisprudence, and to special monographs on the larynx and its anatomical and surgical relations, I could find no instance of such an obstructing agent having ever been used for the purpose of inducing suffocation with a homicidal or suicidal intent. The opinion which was gravely broached, that it was possible that the cork, while the deceased was in the act of extracting it from a bottle with her teeth, might, by a sudden impetus from the contained fluids, have been driven into the position in which it was found, scarcely deserves mention. The sealed end of the cork was uppermost, and the whole structure of the parts in question, negative the supposition. By many well versed in anatomy, it was even doubted whether the upper orifice of the larynx would admit a body of such a size, and, though the fact in the present case was certain, I determined to put the matter to decisive proof.

Through the kindness of Professor Goodsir, I was enabled to make the requisite experiments in the College dissecting-rooms, and throughout I was kindly favoured with the co-operation and advice of Messrs Turner and Edwards, demonstrators of anatomy in the University. The mouth of a well formed male subject of middle age was forced open, and the tongue pulled forwards. On passing a cork (similar to the one which had been found in the body of the deceased, and a correct representation of which, in outline (fig. 1), and in section (fig. 2), is subjoined) along the mouth to the back of the throat, and pushing it against the cervical vertebrae it was found to slip downwards, and on continuing the pressure, the upper end was forced backwards, while the lower was tilted forwards, and became at once arrested. The experiment was again and again repeated, and with similar results. The foreign body was firmly fixed, and the pressure being maintained in the same direction, it was found that it could neither be pressed backwards into the gullet, nor farther downwards into the air-passages. Careful manipulation externally, led us to believe that the cork was arrested at the larynx; but as there were doubts as to its exact position, Mr Turner dissected the integuments, superficial muscles and vessels, etc., from one side of the neck of another body, leaving the constrictors of the pharynx *in situ*. The cork was now passed as before, and fixed in the same position with the finger; the constrictors were now carefully incised and the interior of the pharynx exposed, when the cork was found placed as exhibited in fig. 3, p. 515, which is copied from a drawing made by my friend Dr John Smith, from a section of the head and neck. The well known difference in size of the larynx in the male and female, led me to repeat the operation on the body of a female, past the middle term of life, and similar results were obtained—the cork which had been used in the previous experiments passing with ease, and becoming arrested in the upper part of the larynx, as described above.

Fig. 1.

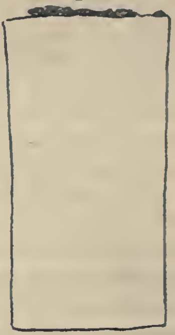
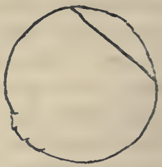
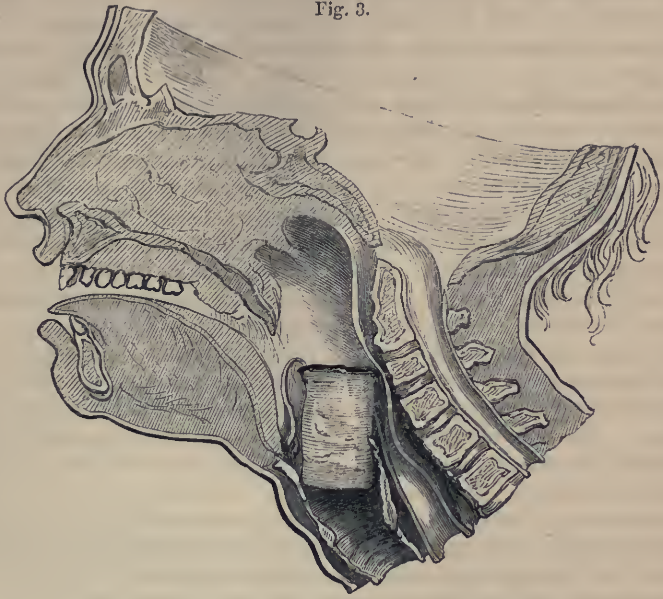


Fig. 2.



Surgical writers take pains to describe the method of introducing instruments into the larynx, insisting upon many precautions requisite for the due performance of the operation and the avoidance of obstacles which, to some, have appeared so formidable, that they have recommended that the instrument to be introduced should be passed by the nares instead of by the mouth. Thus Desault, the original proposer of the method, "was well aware of the difficulty of introducing a pipe from the mouth into the larynx. Before this can be done, the epiglottis must be commanded, which is not an easy matter. He found, however, that a tube passed along the right nostril, and properly curved, slipped very readily into the opening of the glottis. Here there was no obstacle afforded by the epiglottis, and no risk of folding it over the top of the larynx, since the point of the tube is behind the line of that valve. This, therefore, is decidedly the mode to be adopted in suspended respiration, unless where the subject is so young, and the rima so small, that a proper sized canula cannot be introduced into the trachea." And Allan Burns[1] says, that "the deepness of the epiglottis, and the facility with which that valve is folded over the rima, render the introduction of a tube from the mouth into the larynx by no means an easy process." And he states that "the delay and discomfiture which is occasioned, may be avoided by following the practice of Desault."

Fig. 3.



We are convinced that the great point to be attended to in the introduction of instruments into the larynx, is the forcible dragging forward of the tongue, followed by the pressure of the finger at its root, to maintain it in its protruded condition. The effect of this is well marked, if the experiment is made on such a section of the head as is shown in fig. 3. The epiglottis is raised, exposing the upper strait of the larynx. The whole organ, however, is dragged upwards, and, what is important, slightly backwards, so as to bring it more into the mesial line from the position which it occupied, almost under the back part of the tongue, which in the ordinary condition of the parts considerably overlaps it. Should an instrument or foreign body be attempted to be passed, without previously bringing the tongue forwards, the very effort of introducing it into the throat pushes the tongue backwards over the larynx, forces the epiglottis downwards, and renders the operation one of difficulty. There is no doubt that, under these circumstances, the passage of an instrument by the nares, affords a better chance of the larynx being entered from the peculiar curve forwards, caused by the instrument impinging on the front of the vertebral column. The direction now given affords a pretty certain chance of its reaching the upper orifice of the larynx, as it lies concealed behind the back of the tongue.

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[1] On the *Surgical Anatomy of the Head and Neck.* 2d edition, pp. 407, 408.

The position of the head of the patient has no small influence in facilitating the introduction of instruments into the larynx. A recent author, M. Follin,[1] has directed attention to the subject with more especial reference to the œsophagus, but his experiments and conclusions apply almost equally well to the orifice of the larynx. "If," says M. Follin, "the head of a dead body be forcibly extended, the cervical region is observed to describe a curve, the summit of which corresponds to the level of the fifth and sixth cervical vertebræ; the superior orifice of the œsophagus also corresponds to the apex of this curve, and if while the body is maintained in this position, we attempt to insert the point of the index finger into the superior œsophagus, we feel it strongly squeezed; a sound introduced by the mouth is then found to penetrate the canal with difficulty, and *has a great tendency to engage itself in the larynx*." M. Follin concludes that catheterism of the œsophagus ought never to be practised while the head is forcibly extended, but rather when it is in a flexed condition.

In the medical report, the opinion was expressed that the deceased herself could not have inserted the foreign body. Putting aside her advanced age, the state of intoxication in which she was proved to have been very shortly before her death, and the severe injuries she had received, the manipulation which, on experiment, was required for the introduction of the cork into the larynx of a dead body, in which all the exquisite sensibilities of the parts are abolished, justified, in our opinion, the statement of the report. Many cases, no doubt, are on record of maniacs and others, where death was caused by cramming the mouth and fauces with some bulky substance. I know of one case where suicide was committed by stuffing a silk handkerchief into the mouth; and Dr Handyside has recorded another, where a woman "confined in prison, forced a hard cotton plug into the back of the fauces."[1] Dr Taylor,[2] however, remarks on the rarity of suffocation as a suicidal act, and considers "death by suffocation as presumptive of homicide, unless the facts be clearly referable to accident." In Dr Handyside's case, the plug projected far into the mouth, and was of such a bulk that it required but little beyond ordinary suicidal determination to effect the purpose intended. In the present case, on the other hand, it was necessary, from the comparatively small size of the foreign body, to guide it past the arch of the palate, and then to push it forcibly downwards on a mucous membrane spasmodically sensitive to the slightest touch, and which has at its beck not merely the small muscles in its immediate vicinity, but the most powerful in the body. The reflex sensibility of the larynx in such a case, would have at once defeated the purpose of a suicide; and though it might be urged that the intoxicated condition of the woman would have blunted the natural sensibility of the parts, the very plea of intoxication nullifies the possibility of such a suicidal act.

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[1] *Des rétrécissements de l'œsophage (thèse de Concours).* Par M. Follin. 8vo, 1855. Paris.

The only satisfactory explanation that, in our opinion, could be given of the presence of the cork, was, that it had been forcibly placed there by another party. As to the means employed by the murderer to accomplish his purpose, our experiments show that the mouth of the deceased must have been widely opened to allow of the forcible pulling out of the tongue with one hand, and the extended introduction of the cork with the other. In doing so, the head, in all probability, was thrown into a state of forced extension, and thus, as we have shown, a greater facility afforded for the insertion of the cork in the upper orifice of the larynx.

Death must have speedily followed such an obstruction to the respiration, and the other injuries received by the deceased point to this as the last act in the tragedy. The evidence on the trial, as we shall see, still further corroborates the testimony afforded by the *post-mortem* examination, and the determination of the final proximate cause of death gives us a clue to the order of sequence of the other injuries. The wound of the scalp, and the ecchymosed condition of the pericranium and temporal muscle, presented all the appearances of having been produced immediately before death. The wound was gaping, and its edges irregular and bloody. The surrounding serous effusion was probably the result of gravitation. Dr Christison has ably shown the close similarity that exists between the appearances presented by blows and contusions received either immediately before or shortly after death;[3] and in the present case it comes to be a question whether the injuries mentioned were actually produced when the deceased was in life or shortly after death. Nothing very conclusive can be gathered from the appearances presented, though the scattered character of the ecchymosis, and the peculiar manner in which the blood, in a coagulated condition, was infiltrated through the substance of the muscle, lend weight to the evidence adduced on the trial as to the time of their production. With the more important injury to the chest we have much less difficulty. The existence of extensive emphysema, which, at the moment of its discovery, was supposed to be the result of advancing decomposition, but which, on the important testimony of Mr Tod, was proved to have been present four hours after the deceased had been seen in life, is a convincing proof that continued respiratory efforts followed the receipt of the pulmonic wound. The weather at the time, was cold and damp; the body, which was inspected forty-six hours after death, had been kept in a cool apartment where there was no fire. Mr Tod, when hurriedly called to see the deceased, and unaware that she had been dead for so long a time, on attempting to feel the radial pulse, had his attention drawn to a peculiar crackling sensation, which he felt on making slight pressure over the flexor and extensor tendons. He threw down the clothes, and ascertained that the same condition existed in a more marked degree over the upper and inner aspects of the thighs. The presence of such extensive emphysema was a conclusive proof that the injury to the chest was not immediately mortal, and that the deceased had survived it for some time.

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[1] *Edinburgh Medical and Surgical Journal*, vol. lvii.

[2] *Medical Jurisprudence.* 5th edition, p. 766.

[3] *Edinburgh Medical and Surgical Journal*, vol. xxxi.

Such injuries, received by a woman of the age of the deceased, and who was proved to have been much intoxicated, must have rendered her vitality so feeble, that little reaction could be expected should a fresh injury be inflicted, and death must have speedily followed a very slight interruption to the already impeded respiration. And this explains, in our opinion, the absence of any well marked line of separation between the congestion of the mucous membrane immediately below the insertion of the cork, and the appearance presented by the parts above, which were not subjected to pressure. In a person who was, as we believe, moribund at the time when the foreign body was introduced, we could not expect such sharp definition in the appearances as one would look for in a person of strong constitution, where a similar mode of suffocation had been successfully employed. Indeed, we consider it almost an impossibility to produce suffocation in a healthy individual with such an obstruction, were alcoholic or other stupefying agents not previously administered. And even were the chest partially fixed by the weight of the murderer's body, or, as in this case, by a severe injury, we think it highly probable that the remaining respiratory power would prove sufficient to dislodge the foreign body, which would be found loose in the pharynx, and not, as in the present case, in the position into which it was forced. The lubrication of the cork with *frothy* mucus, Mr Tod and I were inclined to regard as another evidence that the deceased had been alive at the time of its insertion, and during her feeble efforts at expiration, while the cork was being passed into the larynx, had forced bronchial mucus, tinged with blood from the pulmonic wound, upwards into the throat. When the cork had once been introduced, such an amount of mucus could not have escaped without dislodging it, and the stomach contained no fluid of the same colour and consistence.

Such being the grounds on which the various statements in our report were founded, let us see how far such opinions were borne out by the evidence at the trial. Five parties were in the house about the time of the commission of the murder. Robert Stewart and his wife Mary Sutherland Stewart; Malcolm their son, a boy of eight years of age; John Stewart, reputed to be a brother of Mrs Robert Stewart; and the deceased Janet Stewart. The intoxicated condition of Robert Stewart and of his wife justified the authorities in keeping a strict surveillance over them for some days. Meanwhile, the evidence of their son, and the information obtained from other quarters, fixed the suspicion of the crime upon John Stewart, who was in due time indicted for the murder, with an alternative charge of assault to the danger of life. Meanwhile, Mrs Robert Stewart, who had been previously complaining, fell into a declining state of health, and, after a fortnight's illness, died, with the symptoms of a low nervous fever. Six days before her death she emitted a declaration. Her husband continued to drink to excess, and before the date of the trial had several attacks of delirium tremens, and for some time fears were entertained of his recovery. The most important evidence at the trial (a full report of which will be found at page 540) was that of the little boy, who spoke distinctly to the prisoner kicking deceased on the head, back, and sides, and mentioned that at the time the prisoner, who was a remarkably strong man, had thick boots on. The boy then went out to play, and on his return found deceased lying on the floor in the same position in which he had left her, and the prisoner sitting by the fire. The mother, who was in bed at the time, corroborated in her declaration the testimony of her son, stating, that she "heard John Stewart say, 'I have broken your ribs on one side, turn round on the other side and I will give you the same.'" The father was so intoxicated that he only remembered hearing a noise. The prisoner was in the same room with the deceased after she received the injuries on the chest and head, for a sufficient length of time to allow of his placing the cork in the position in which it was found; but that he was the guilty party there was no direct proof. The cork was identified as similar to those which the grocer in the immediate neighbourhood was in the practice of supplying with his liquor, and in the room itself, at the time, there were plenty of bottles, both empty and uncorked. But, according to the evidence of the boy, however, his father, Robert Stewart, was also in the kitchen when he returned, "lying on the floor." The father, no doubt, on his examination, said he did not recollect this, but, from his own confession, his condition at the time was anything but favourable to the exercise of his senses. Indeed, the miserable appearance which this old man made at the trial, tended more than anything else to influence the judgment of the jury. His indecent behaviour in the witness box, and the state of depravity in which all the inmates of the house were proved to have been living for months, materially damaged the evidence for the prosecution. The son was but a boy of eight years of age, and from his childhood had been exposed to the worst influences. The testimony he gave suffered in consequence, and witnesses were produced who spoke as to the child having on various occasions prevaricated on the subject, though we think that his saying that "mother had told him that John had meddled his granny" was very natural, and what might have been expected under the circumstances. The mother, sensible of her dying condition, and burdened with a sense of her responsibility, would naturally take many an opportunity of impressing on her boy, whose upbringing she had so much neglected, the necessity of his adhering strictly to what he had seen and heard, and might even make him repeat his story again and again, that he might not forget it. The presence of the cork introduced a strange element of uncertainty into the case. The injuries to the chest and lung were such that, if not immediately fatal, they must have been speedily so to a woman of advanced age, and addicted to such habits. She survived their infliction, however, for a period of time which cannot be accurately determined. Had there been no obstruction present in the larynx, and had death resulted from the fracture of the ribs and the wound of the lung (as in all certainty it would), the prisoner would scarcely have escaped sentence. But it was proved that the deceased survived the injuries in question for some time; and it became a matter of great difficulty to the jury to fix upon the precise party in such a household, who put an end to the woman's life. The strongest weight of suspicion rested on the prisoner; there was an uncertainty, however, and the evidence was not unimpeachable; and the jury, in our opinion, acted wisely in returning a verdict of "Not proven."

The whole story is tragical. We have alluded to a sudden death in the same house a few months previously; during the progress of the judicial investigation, Mrs Robert Stewart died; a few weeks after the trial her husband, Robert Stewart, died of delirium tremens; and a few weeks since the body of a man was found floating in the Clyde, which is, on good authority, believed to have been that of the prisoner John Stewart. Of that household, the only survivor now is the little boy, who, through the kindness of disinterested friends, has been placed in a public institution, where every endeavour will be made to obviate the effects of his early training, and to render him a useful member of society.

Case II.—*Impaction of a mass of dough, or bread-pulp, in the throat and larynx. Infanticide.*

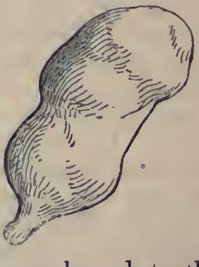
In the month of October 1854, the body of a male infant was found in the passage of a house situated in one of the poorest districts of the old town of Edinburgh. The woman who discovered it stated that, when found, the body of the child was warm, where covered by its clothes, which were of good quality. Information was communicated to the police, who took possession of the corpse, and, a few hours afterwards, I was called on to inspect it. The child seemed emaciated, and, from the markings on its linens, appeared to have been labouring under diarrhœa. The face was congested, but not in a marked degree, resembling very much the colour produced by exposure to a sharp cold wind. On examining the mouth, my attention was drawn to the tongue, which was dark, and protruded slightly from between the gums. I communicated my suspicions to the Procurator-fiscal, and a warrant was issued to examine the body. It was a Saturday night on which it had been found, and the examination, which was conducted by Dr Burt and myself, did not take place till the Monday following.

External Appearances.—The body was rather emaciated; it measured twenty-four inches in length, and weighed eight pounds. The face was slightly congested, and on separating the lips, the point of the tongue, which was dark and congested, was observed to protrude. The navel was entirely closed. The teeth were not present in the mouth, and the infant appeared to be between two and three months old. There was slight greenish discoloration of the abdominal wall.

Head.—The only thing to be noted was an ecchymosed spot on the surface of the pericranium, over the right parietal bone. The brain was not congested, but its substance was thin and diffluent.

Throat.—On removing the tongue, larynx, etc., the pharynx was found occupied by what appeared to be a mass of dough or paste, accurately moulded to the parts, as represented in Fig. 4. The lower and narrower portion was inserted, to the depth of two or three lines, into the laryngeal cavity. The epiglottis was raised and applied against the root of the tongue. The larynx interiorly, and the upper part of the trachea, were moistened with bloody serum.

Fig. 4.



Chest.—The anterior borders of both lungs were emphysematous, and of a reddish cream colour. The posterior part of both lobes, was condensed to the touch, and did not crepitate under the finger. Throughout the rest of the lungs, small portions of their substance, about the size of horse-beans, could be felt of a hard consistence, and of a darker colour than the surrounding tissue. On cutting into the upper portion of the lungs, black blood flowed from various points, and from the lower portion, on pressure, small drops of a whitish fluid started out from its substance, but no serum flowed. Both lungs floated freely in water. The other organs of the body presented nothing worthy of remark. About ℥iss. of bloody serum was found in the cavity of the peritoneum. Under the microscope, the whitish matter from the lungs was found to consist of pus-corpuscles, and of a smaller proportion of fusiform cells of great delicacy.

We stated it as our opinion, that the child had been suffocated by the presence of the mass discovered in the throat and upper part of the wind-pipe.

The introduction of a plug into the mouth and throat, is a common mode of producing suffocation in infants. The substances employed, and which have been recorded in works on medical jurisprudence, are exceedingly various, and form a curious list. In the course of our reading, however, we do not remember of meeting with a case where a substance of so easy acquisition as dough, or bread made into a pulp, was employed for a similar purpose. The extreme difficulty of its identification with portions of the same material in the possession of the accused, is at once apparent, and forms a marked contrast with cases in which other substances have been employed—a striking example of which we give on the opposite page. Such a plug, too, from its plasticity, could with difficulty be dislodged, and in the case of an infant, the first stage of its introduction would be facilitated by the instinctive sucking efforts of early life; a fact which helps to explain the frequency of this form of infanticide. In an interesting case recorded by Professor Easton in the *Monthly Journal*, for February 1845, where death was evidently produced by suffocation, mud was found in the gullet, and also in the stomach of an infant about three weeks old. The presence of the foreign material was most naturally accounted for, on the supposition "that it was introduced by another into the mouth of the child while yet living, and that it had been swallowed during the convulsive struggles which most probably preceded dissolution." It was also most probable that the mud had been introduced in a semi-fluid condition, and yet we find it noted in Professor Easton's report, that "the larynx and windpipe were free of any obstruction whatever." In our case, on the contrary, it will be seen from the woodcut, that, whether from accident or from the forced protrusion of the tongue, the epiglottis had been forced upwards, and the larynx entered. The absence of any marks of violence on the mucous membrane of the mouth, can be accounted for by the nature of the obstructing body, and the ease with which it could be passed into the throat. Here, as in the first case, there were circumstances which tended to hasten death, and thereby shorten and enfeeble the struggles of the victim. Devergie's test could not be applied, because no marked difference existed in the congestion of the mouth and throat. The condition of the lungs, the fluid in the peritoneal cavity, the nature of the intestinal discharges, and the general emaciation, proved that the child had suffered from exposure, and, very probably, from culpable neglect; and its weakened frame and exhausted vitality, must have easily succumbed to any mode of suffocation.

The following case, which occurred recently in France,[1] deserves mention on account of the peculiar nature of the plug which was employed, and of the interesting manner in which the crime was proved.

In the night intervening between the 1st and 2d days of June 1855, some workmen engaged in cleaning out a privy in the Rue de Sartine, Paris, found in the drain a newly-born female infant. Its mouth was plugged with pieces of paper belonging to a number of the *Presse* newspaper. The medical man charged with the *post-mortem* examination, ascertained that the child was healthy; had been born viable, and had breathed; that the death, which had occurred previously to the body having been thrown into the privy, had resulted from the suffocation produced by the occlusion of the respiratory passages.

It was soon known that the mother of the child was a woman of the name of Michel, whose advanced state of pregnancy had been remarked by the lodgers in the house referred to; and a search made in her room yielded proofs of a recent delivery. When arrested, she at once confessed the fact, stating that her child had been born alive, and that she had carried it herself to a midwife in the Rue Montmartre. When requested to point out the house where she had deposited her child, she boldly conducted the officer of police to a woman of the name of Marsault, who at once denied the fact of the alleged visit. In this statement Marsault was confirmed by the testimony of two fellow-lodgers, who affirmed that they were certain that the girl Michel had not visited the house in question since the 18th of the previous May. Taken aback by these declarations, Michel once more attempted to put the officer on the wrong scent, and directed him to the dwelling of a second midwife, allowing that she herself had been deceived as to the first. She was soon, however, forced to confess that she had told a falsehood, and that she had had no communication with any midwife after her delivery. She then pretended that, when seized with the pains of labour, an old woman of the name of Richon, who kept the chambers of some of the lodgers in the same tenement, hearing her cries, had run to her assistance, and had agreed, for the sum of 100 francs, to carry the infant to a midwife. She added that, if the child had been thrown into the privy, the responsibility of the crime did not attach to her. This last assertion speedily received a complete contradiction. On a second search being made in her room, with still greater care, a piece of paper was discovered, similar to that of which the plug found in the mouth of the child was composed rendering it exceedingly probable that the child had been suffocated on that very spot. Lastly, it was proved that, on the 1st of June, some hours before the workmen commenced to clear the privy, Michel had given out, as a piece of news, that an infant had been found there. In this she was prematurely communicative, and proved herself to be the guilty party.

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[1] *Journal des Débats, Sept.* 6, 1855.

On this evidence, Clementine Michel, aged 25 years, a sempstress, appeared before the Court of Assizes of the Seine, on the 4th of September 1855, charged with the crime of infanticide. When examined in court, she declared that she remembered nothing as to what took place after her delivery.

The jury returned a verdict of guilty, with the admission of extenuating circumstances, and she was sentenced to ten years' imprisonment, with hard labour.

(*To be continued.*)

ARTICLE V.—*Sudden Death in a case in which Chloroform was being administered.* By W. A. ROBERTS, M.D., Surgeon-Dentist.

(*Read before the Medico-Chirurgical Society.*)

THE sudden death of a lady, while under my care for the extraction of some teeth, having been reported in several of the journals as a case of "Death from Chloroform," and having created a considerable sensation in the public mind, I consider it necessary to communicate the particulars of that unfortunate case, so that the profession may be enabled to judge as to the cause or the association of circumstances which brought about the fatal result.

Mrs H——, aged 36 years, tall, and rather delicate in appearance, called, at 3 P.M., at my house, on Tuesday the 30th October last, accompanied by her husband, for the purpose of having the four lower incisor teeth extracted. With the intention of dissuading her from the use of chloroform, I remarked that the operation would be very simple, as the roots were single and by no means firm; but she replied, "Oh, but I must have chloroform. You have given it to me before, and you must give it to me now." Her husband expressed no wish in the matter; and as I had administered chloroform to her on *four* previous occasions during the last twelve months, without any unusual effect, and as I was aware that her medical attendant in the country gave it to her during her accouchement, some months previous to her first visit, I consented to its employment on this occasion also.

While preparing to sit down in the operating chair, she said, "Have you heard of that case of death from chloroform which occurred lately in my neighbourhood, while a person was having a tooth extracted?" and, again, when seated, she observed, "I feel rather nervous." My son assisted me in administering, in the usual way, the chloroform, which was the preparation of Messrs Duncan and Flockart. Mrs H—— had only taken about nine or ten inspirations, obtaining but the partial influence of a quantity short of a ʒiss poured out from the bottle, and inhaling it for a space of time certainly less than a minute, when she said, "You must not operate until I am quite insensible;" and, again, "I am not over yet, you must give me more; I am not over yet;" and *immediately, even while speaking*, she gave a convulsive start, and with a stertorous inspiration, and with the eyes and mouth open, sunk to the floor.

The suddenness of this attack, the expression of the countenance, and the attitude, altogether so different from anything which I had ever witnessed from chloroform, although I had up to that time on my register 2096 cases, in which I had operated with the use of chloroform, immediately alarmed me, and I instantly desired my son to run for Professor Simpson, whose house is close at hand, in the meantime doing all that I could think of to resuscitate the patient; and as Dr Simpson was fortunately at home, he came to my assistance, accompanied by Dr Priestley, in less than five minutes from the time that the accident had happened. The means employed were pulling forward the tongue and keeping up artificial respiration; and as the face was greatly congested, bleeding was attempted, but not more than six or seven ounces could be procured. Galvanism was applied alternately with artificial respiration, but produced no permanent benefit. After artificial respiration had been carried on for some time, repeated spontaneous inspirations were remarked, but at no time more frequent than five in the minute. The pulsations of the radial artery were at first not sensible, but, while the artificial breathing was going on, they became more distinct, and the livid appearance of the face in a great measure disappeared. The same improvement was also noticed when the galvanic current excited the muscles of respiration, which at first gave hopes of resuscitation. But, occurring as they did, more than once, ultimately declined, and after one hour and a quarter (4 20 P.M.) of the most energetic exertions (especially on the part of Dr Simpson), the case was reluctantly abandoned as hopeless, life being manifestly extinct.

The following is the report of the *post-mortem* examination, which was made twenty-eight hours after death, by Drs Simpson, Peddie, and Priestley, along with myself and son:—

Post-mortem examination of Mrs H., twenty-eight hours after death.

The general appearance of the body presented nothing unusual. The deep livid colour of the integument of the head and neck, and the injection of the conjunctivæ, which were observable at the time of death, had in a great measure disappeared.

On laying open the abdominal walls, the organs contained in that cavity were found, in most respects, healthy. The capillaries of the intestines were, however, distended with blood, giving to the convolutions of the bowels a more than usually deep red colour.

The liver, too, was firmly adherent by the whole of its convex surface to the diaphragm, by old lymphy exudation, but when cut through, its substance revealed no other morbid change.

The uterus was healthy, and its appendages healthy.

In the dissection of the thorax, the lungs did not appear more than ordinarily congested, except posteriorly, where they were of a deeper colour, and contained more blood; this was, doubtless, the result of *post-mortem* circumstances.

When the pericardium was laid open, the heart was found preternaturally small in comparison with the conformation of the body; the right side was flaccid and full of blood, while the left side was comparatively firm, and contracted. On dividing the descending vena-cava, a quantity (probably six or eight oz.) of dark, half coagulated blood escaped from its tributaries, and from the right auricle.

The extreme thinness of the walls of the right auricle and ventricle were remarked when they were laid open; in fact, in no portion of the muscular substance of the right ventricle did the thickness exceed one-half the normal proportions, and its component tissue was soft and lacerable.

Both right auricle and ventricle were gorged with dark blood, and the valves belonging to both cavities were healthy.

The left ventricle was contracted, and little blood remained in either ventricle or auricle of this side. The muscular parietes were thinner than usual, but the difference was less marked than on the right side.

Under the microscope, the muscular fibres of the right side of the heart, more especially of the ventricle, were much altered in appearance. The transverse striæ were indistinct, or had disappeared entirely in some portions, while fatty granules were everywhere observable, arranged in lines, along the direction of the fibres.

The same state was found to be present, but in a less degree, in the muscular tissue of the left ventricle; here, however, the fatty particles were few and scattered, and the transverse markings, for the most part, distinct.

The vessels of the brain were turgid with blood, but, beyond this, the cerebral organ appeared healthy.

(Signed) J. Y. Simpson.
A. Peddie.
W. O. Priestley.

To these statements I have only to add, that I have been informed Mrs H.'s father died some years since of disease of the heart, being found dead in his chair.

Edinburgh, 30, Queen Street, Nov. 23, 1855.

Article VI.—*Medico-Legal Observations on Manual Strangulation and Death by External Violence, with Experiments and Illustrative Cases.* By Alexander Keiller, M.D., F.R.C.P., Lecturer on Midwifery, and formerly Lecturer on Medical Jurisprudence in the Medical School, Surgeons' Hall, Edinburgh.

(*Read before the Medico-Chirurgical Society, November* 21, 1855.)

In the October number of the *Edinburgh Medical Journal*, an unusually interesting communication appeared from the pen of Dr Charles Wilson, under whose immediate observation the important medico-legal case, which forms the subject of the paper referred to, occurred.

From my having been, when lecturing on Medical Jurisprudence, to a certain extent, engaged in the forensic investigations which took place in regard to this peculiar case, I do not deem it necessary to apologise for here offering a few observations, with the more special view of recording the results of certain experiments which I was induced, at that time, and subsequently, to perform, for the purpose of ascertaining the probable nature and extent of lesion capable of being produced on the structures of the human larynx by means of *manual strangulation.*

This duty I now the more readily perform, from the conviction that, while my observations and experiments will tend entirely to corroborate the justness of Dr Wilson's admirably expressed views and reflections, they may, at the same time, prove a useful, because practical supplement to his excellent communication.

To enable those members of the society who may not have carefully perused Dr Wilson's paper to form their own opinions respecting the important medico-legal case to which it refers, it may be proper for me first to re-state the leading circumstances connected with it as they actually occurred previous to, and during its judicial investigation. By here briefly citing the history of the case, the necessity for, and telling significance of my experiments will, I think, be the more readily appreciated and admitted.

A few sentences from Dr Wilson's paper may prove sufficient for my present purpose: "A man was, some time ago, accused of having caused the death of his wife by strangulation, for which he was indicted and tried before the High Court of Justiciary, the various counts or alternatives of the charge narrating that, "with hand, or hands, or with some kind of ligature, he did violently compress, or press on her throat, or did violently press her throat against some piece of furniture or other hard substance, or did thereby, or in some other manner, strangle and suffocate her." The accused "was a man of massive frame and strength, and inured to labour. Both he and the deceased were understood to have been addicted to intemperance, the woman, especially, having been reported to have been prone to the grossest excess. He admitted that he was alone with her in the house at the time of her death, and that he had struck her in the passage; she then went into the kitchen, where hearing her fall, he followed her, and found her dead, in a sitting posture, with the legs extended, and leaning with her back against a chair. The defence was, that she had fallen accidentally, while in a state of drunkenness, and had thus produced the fatal injuries."

The following copy of the indictment, and brief summary of the case, is extracted from *Shaw's Justiciary Reports* for 1851.

——— was accused of murder,

"In so far as, on the 12th day of February 1851, or on one or other of the days of that month, or of January immediately preceding, or of March immediately following, in or near the house called the ———, in the parish and county of ———, then occupied by you, or in which you then resided, you, the said ———, did wickedly and feloniously attack and assault the now deceased ——— or ———, your wife, and did, with your hand or hands, or with some kind of ligature to the prosecutor unknown, violently compress or press upon her throat, or did violently press her throat against some piece of furniture, or other hard substance to the prosecutor unknown, and did thereby, or in some other manner to the prosecutor unknown, strangle or suffocate the said ——— or ———, in consequence whereof she immediately or soon thereafter died, and was thus murdered by you, the said ———."

"The general evidence in the case was, that the deceased (who was the pannel's wife) had been seen going about in the morning, and was also seen on the bed, with her clothes on, along with the prisoner, about half-past ten on the day of her death.

"The witnesses who so saw her, being neighbours, heard of her death about eleven. The witnesses who were called in and saw her during the day, spoke to there being no protrusion of the eyes, or other of the ordinary symptoms of strangulation.

"The prisoner, in his declaration, attributed her death to falling against a sharp-edged chair, from a blow by him. The main question was, had the prisoner strangled her manually, and so broken the larynx?"

I shall here transcribe Dr Wilson's report as it will best enable us to form an opinion as to the actual nature of the injuries sustained, if not also of the actual manner in which they were inflicted.[1]

The particulars mentioned in this report have been so fully analysed and commented on by its author, that it might well be considered presumptuous in me to attempt to re-examine minutely its details, more especially as any observations that I might be disposed to offer on various points of the report, would, in a great measure, be a mere recapitulation of what has been already so clearly demonstrated, suffice it, therefore, for me at present simply to express my convictions in regard to this case, as in complete accordance with those held and expounded by Dr Wilson. Independently altogether of the strongly corroborative evidence derived from my experiments (to which I shall particularly refer immediately), or of the inculpating facts ascertained during the usual preliminary investigations on the part of the legal authorities, I most cordially subscribe to the following opinion expressed in the conclusion of the medical report.

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[1] Dr Wilson's Report appeared in full in the October Number of this Journal.

"From a review of these details, it seems impossible to resist the inference, that death in this instance, has been produced, in some way or other, through means of a violent compression or constriction of the throat : the condition of the larynx, and of the parts contiguous, evincing this directly ; while the state of the system generally, and all other circumstances, appear fully consistent with such a conclusion."

Without, therefore, desiring to take up time, by at present uselessly recapitulating matter, with which the members of the society may be already sufficiently acquainted, I shall take the liberty of merely alluding to one or two points, the import of which I have frequently, in other cases, had good opportunities of observing. And first, the livor or lividity observed about the head and neck, and other parts of the body, indicated the apparent suddenness of the death, which was further proved by the other suspicious characters, such as the traces of recent nasal hemorrhage, etc. The various contusions were truly such as most likely to have been violently inflicted by a second party, their ecchymosed character sufficiently indicated their production *ante-mortem*, and their relative position undoubtedly suggested wilful rather than accidental injury. The absence of much distortion of the features (such as great prominence of the eyes, contortion of the lips, protrusion of the tongue, and extreme congestion of the head and face), by no means opposed the opinion as to strangulation being the direct mode of death. I have now had numerous opportunities of observing the appearances presented by the features of persons that have died asphyxiated by various forms of suffocation, and I can testify to the fact, that even in cases of violent death by strangulation (as in suicidal suspension, or hanging, of which I have witnessed recent instances), there are seldom to be traced any such horrible signs as are popularly, or poetically, and I may add, often legally considered so essentially requisite. Instead of seeing as Shakespeare describes, and as Dr Wilson pointedly quotes—

> "His face black and full of blood,
> His eye-balls further out than when he lived,
> Staring full ghastly like a strangled man,
> His hair upreared, his nostrils stretched with struggling,
> His hands abroad displayed, as one that grasped,
> And tugged for life, and was by strength subdued."

Instead of this Shakespearian picture, we, I believe, more usually fail to see anything which can justify us in deciding, by the appearance of the features, as to the actual mode of death. The appearance presented by the lungs and other organs in the chest, undoubtedly indicated death by asphyxia. But of all the indications noted in the medical report, those in the region of the neck, so peculiarly and so gravely involving the larynx, are unquestionably the most suspicious, if not utterly condemning, and it is to this point I particularly desire to direct the attention of the society, and first let me refer to the infrequency of such lesions from accident or otherwise. Accidental injuries of the larynx are known to be of exceedingly rare occurrence, and, as stated by Dr Wilson, "Fracture of the larynx by a fall or other ordinary description of injury or accident, is in itself so rare an occasion, that it scarcely occupies a place in the common books on surgery, and even when encountered there, it is usually indicated without the distinctness of individual experience." Again, "the lesion is itself of the rarest description from whatever cause," and, "as the manifest result of a fall, it is to be found nowhere in any ordinary record."

If we look for what evidence exists on this head in medico-legal works, we shall find very little to guide us; but the little that does exist, is altogether against the probability of fractures of the larynx ever being caused by falls, unless accompanied by a degree of momentum to which the body of the deceased could not, in the case under consideration, have individually been subjected to.

Even in comparatively few cases of violently conducted suspension, as in criminal executions, are there any traces of laryngeal laceration recorded. If, however, we turn to the evidence on the other side, we can have no difficulty in arriving at the conclusion, that in *manual strangulation*, and not in accidental, or even in wilful falls, however severe, is to be found the solution of the question of laryngeal fractures, such as were ascertained to exist in the case before us.

The most experienced medico-legal observers, as Devergie and others, do not hesitate to speak of the occurrence of such fractures as establishing generally a strong presumption of homicide. There are apparently similar cases recorded by authors, where the injuries were actually known to have been wilfully inflicted by the hands of others (*i.e.* by manual strangulation or homicidal throttling). There is no similar case on record where it is attempted to be proved that the various injuries found, resulted from any supposable fall, or from any other ordinary casualty.

The results obtained by my experiments entitle me to believe, that the laryngeal fractures found by Dr Wilson were caused by the former, and not by the latter description of applied violence; and when taken, along with the suspicious character of the other injuries, and the ascertained probable death by asphyxia, leave little doubt on my mind as to the manner in which the extinction of life was in this case accomplished.

The extensive injuries found in and around the larynx, and the position and nature of the other indications of violence, together with the internal evidence of asphyxia, unquestionably lead to the opinion that death here resulted from wilful outrage, and not from any form of accidental or of suicidal injury. It is, at least to my mind, quite impossible to "resist the inference," that the injuries found on the body of the deceased were *wilfully*, and not *accidentally*, inflicted, which was the defence led to account for the fatal injuries, viz., by a fall against the edge of a chair, or other part of furniture in the apartment—a casualty, the presumed possibility of which evidently induced the presiding Judge to indicate to the Jury the propriety of returning a verdict of acquittal.

"The character of the injuries seemed to suggest the following as the most probable method of their perpetration. The woman had fallen, or been struck to the ground; hence, possibly, the contusion on the right side of the forehead. The supposed perpetrator had then knelt at her right side, with his face towards her, and his right knee across her chest, causing the layer of effusion under the pectoralis major muscle; and then, pressing her head to the floor, by his left hand to the left side of her chin, producing here another mark; he had grasped the throat with his right hand, and strangled her with violent pressure, either with the hand alone, or aided by a ligature of some woven texture, "but," as Dr Wilson properly adds, "speculations of this kind, so peremptory in their details, have rarely a proper place in a medico-legal report."

As to the ascertained injuries having been produced *suicidally*, there was no room to imagine, and Dr Wilson had of course good reason to depone his conviction that they could not, in this case, have been the result of any suicidal injury. Although, however, "suicide by strangulation without suspension could not possibly be attended with such an amount of injury to the larynx" as was found to exist, it must not be supposed that it is impossible to have much more extensive mutilations of the larynx inflicted *suicidally;* for example, I once witnessed a case, where, had it not been quite evident that the extensive laryngeal lesions were self-inflicted, it would have been difficult to come to any other conclusion, but that they must indubitably have been homicidal. The case I now refer to is, in this respect, I believe, almost an unparalleled one, and therefore worthy of being recorded. Dr Maclagan, senior, saw this case along with me. He was present at the examination of the body, and will, I doubt not, be able to corroborate the truth of the following statement in regard to it.

A man aged 44, while labouring under an attack of delirium tremens, committed suicide by cutting his throat with a knife which had just before been used for him at dinner.

I saw him immediately after the fatal act, and found him extended on his back in bed, and, of course, quite dead.

I found a dessert knife clenched in his right hand, which lay across his chest, so that the point of the knife was towards the left side; the left hand was lying on the bed; both hands were smeared with blood; the forefinger of the left hand was cut in front to the bone.

The mouth was half open, and some half masticated food appeared between the teeth.

The wound extended across the neck to about seven inches. The larynx was almost completely broken up; the right half of the thyroid cartilage was found lying about half-way down the right thigh, close to an empty basin and a plate containing some salt and several bits of meat; the remaining half of the thyroid cartilage was also nearly detached from the cricoid, and as if nearly pulled out of the wound. The plate was partially smeared with blood; a large pool of coagulated and fluid blood, mixed with froth at the wounds, was found around the neck, especially on the left side.

Such an unusual case of suicide affords ample scope for medico-legal observation, involving, as it does, several important questions in regard to the danger of mistaking suicidal for homicidal wounds. It is by no means difficult to perceive, that even very slight circumstantial evidence, or suspicious circumstances in respect to time, situation, etc., might suffice in such a case to involve an innocent individual in a cloud of almost inextricable suspicion. I have not seen a more dangerous case (if I may so speak) than this, with the exception of one which, although somewhat different in regard to the nature of the laryngeal wounds, presented in some respects a greater amount of suicidal improbability, and consequently might have led, as indeed it almost did, to a proofless charge of homicidal guilt.

On the 23d September 1846, a servant girl committed suicide by cutting her throat with her master's razor. I saw her within a few minutes after her condition was discovered, and found her lying deluged with blood on the floor of a water-closet, in which the lethal deed had been committed.

On subsequently examining the nature and extent of the injuries inflicted, I was induced to preserve the whole parts involved in the almost incredible self-inflicted gash. The following description of the wounds observed may give a sufficient idea of their homicidal-like character :—

The wound externally presented a transverse gash, extending from the left sterno-mastoid muscle, which was uninjured, across to, and through that of the right side, with the exception of a small bundle of fibres which were only partially and very irregularly divided, as by a sawing and haggling incision. The circumference of this large wound, which was gaping to fully one and a half inches, was intercepted by two incisions extending from about the middle of the former towards the right side of the neck, the smaller incisions were of the same length (an inch) and nearly opposite, the one being situated over, and the other below the transverse wound. Two additional cuts of about half an inch in length, but quite superficial, through the skin and superficial fascia, were situated, the one above and the other below the apparent commencement or left extremity of the principal or transverse incision. On minutely examining the structures involved in these five incisions, I found that the whole textures from immediately above the thyroid cartilage (the superior borders of the alæ and the superior horns of which were completely cut through, and their separated portions, with the epiglottis attached, being found lying under the hyoid bone at the upper part of the wound), back to the vertebral column, completely divided—the spine itself being notched in front, and so extensively cut, or rather haggled in two places, that the point of a finger could be readily and deeply passed between the left transverse processes and between the bodies of the fourth and fifth, and the fifth and sixth, cervical vertebræ. The upper part of the larynx, therefore, together with the pharynx, the anterior vertebral muscles of both sides, opposite the fibro-cartilages of the separated vertebrae, and the intervertebral fibro-cartilages themselves, were (along with, of course, the more superficial muscles, viz., the sterno-hyoid, thyro-hyoid, and omo-hyoid of both sides, and the sterno-mastoid of the right side, which, as before stated, was all but cut through), divided. The carotid and jugular of the left side were uninjured, their sheath being only slightly opened. The common carotid and internal jugular of the right side, however, were extensively opened, the artery being cut in two places, the two openings exactly corresponding to the principal gashes into the vertebral column, the superior opening being exactly opposite, and in continuation of the haggling incision between the fourth and fifth vertebræ, extending entirely across and through the anterior wall of the artery, about half an inch below its bifurcation into its two branches, the inferior opening, exactly of the same appearance and extent as the upper, corresponding with the wound in the fibro-cartilage between the fifth and sixth vertebra, and was, consequently, the entire thickness of the body of the fifth vertebra below the superior aperture in the vessel. The internal jugular had only one opening into it, which, however, was equal in extent to the two wounds in the artery, the vein, indeed, being all but entirely divided, the undivided fibres of the sterno-mastoid apparently protecting it from being completely severed. The pneumo-gastric, though exposed, was uninjured.

Such extensive lesions as those above-described might readily enough be deemed incompatible with self-destruction, and, therefore, the medico-legal importance of recording all such extreme cases of suicidal injuries cannot be questioned.

I shall now, however, briefly cite the particulars of the series of experiments which I have performed, with the view of arriving at some well-grounded conclusions on a question which (I believe for the first time in the medico-legal practice of this country) was so prominently brought forward, as to become, in various respects, the most important point of consideration at the trial. I allude to the injuries reported to have been found in and around the larynx of the deceased, and to the question which necessarily arose as to the possibility or likelihood of the same extent of laryngeal mutilation, as was found at the *post-mortem* examination of the body being the result of *manual strangulation*, the assumed want of the positive evidence of which ultimately led to the acquittal of the accused.

That this formed the leading feature on which the case was made to turn, may be gathered from the great prominence which it held as part of the evidence adduced at the trial. To it alone my attention was specially called by the counsel for the prisoner, who first consulted me with the view of my giving evidence in favour of the pannel, which, however, was prudently deemed unsafe after the performance of my first experiment, the result of which induced the prisoner's counsel wisely to decline summoning me to appear for the defence.

In Shaw's published report of the case it is on this head stated :—

> "This case is reported partly in consequence of evidence which was expected to be led in defence, and as to which a list of witnesses had been given in, as to the impossibility of fracture of the larynx being occasioned by compression of the hand. On the day previous to the trial, however, it was discovered that this was possible, by means of experiments, and consequently no witnesses were called for the defence."

Appended to this is the following note, which I, subsequently to the trial, wrote at Mr Shaw's request; and as my note refers to the experiments which I first performed, but of which I did not preserve a correct record, I here give it as it appears in Mr Shaw's Report :—

> "The Reporter has been favoured with the following note from Dr Keiller, lecturer on Medical Jurisprudence, who conducted the experiments :—
>
> 30, NORTHUMBERLAND STREET,
> *April* 25, 1852.
>
> "MY DEAR SIR,—In answer to your queries respecting fracture of the larynx, I beg to state, that, with the view of determining by actual experiment the

important question which was brought out on the occasion of the trial of ——— before the High Court of Justiciary in June last, I lost no time, on the matter being referred to me, in performing several experiments on the dead body, the results of which were to my mind perfectly conclusive as to the possibility of fracturing the larynx by *mere manual force.*

"The experiments on that occasion were three in number, and were performed on subjects of different ages, in all of which the thyroid and cricoid cartilages, together with the hyoid bone, were broken by violently grasping the throat, and forcibly compressing the larynx.

"I have since then repeated these experiments on two subjects, and with the same results,—the hyoid bone and cartilages of the larynx being, in one instance, readily enough fractured by the forcible application of *one hand only;* in the other, however, that of a large and powerfully developed man, the violent grasping of both hands was found to be necessary to produce the injuries inflicted.

"On carefully removing and examining the parts involved in one of these experiments, the injuries sustained by the osseous and cartilaginous structures of the throat, so completely corresponded with those reported by Drs Wilson and Vost as having been observed in the *post-mortem* examination of the body of Mrs ———, that I took care to preserve the fractured larynx and appendages, for the purpose of illustrating my lectures in reference to this exceedingly important question.

"The degree of violence used in the performance of these experiments was necessarily great, and that, too, applied in the direction most likely to produce the various fractures found ; nevertheless, I cannot but entirely concur in the opinions expressed by Drs Wilson and Vost, as to *wilful forcible compression* being, in all cases, much more likely than *falls or other accidental injuries*, however severe, to cause fractures of the larynx, etc., such as were found in the case of ———.

"As, however, the settling of this question may involve the most important and serious considerations, in regard to other charges of homicide by strangulation, I purpose availing myself of other opportunities of more fully testing the whole matter, with the view of ascertaining more accurately the actual kind and degree of manual force required to produce fractures of the larynx, and of determining whether similar lesions of that organ can be readily effected by external injuries otherwise applied.

"So soon as I am in possession of facts sufficiently abundant and important to justify my giving them further publicity, you may rely on my doing so. Meantime, you are welcome to make any use of this communication that you may deem proper. Believe me, my dear Sir, yours faithfully,

Alex. Keiller."

J. Shaw, Esq., Advocate.

Since writing the above note, I have endeavoured to fulfil the promise therein contained, by availing myself of many opportunities presented to me of more fully determining some of the important questions referred to; and I now beg to lay before this Society a few of the results which I have arrived at by careful experiment—results which cannot fail to carry conviction to the minds of those who are at all qualified to judge of their significance.

(*To be continued.*)

Part Second.

REVIEWS.

The Theory and Practice of Midwifery. By FLEETWOOD CHURCHILL, M.D., etc. Third edition, corrected and enlarged. London, 1855. Pp. 667.

BOOKS that get on to third editions, acquire a certain degree of self-importance and independence, or regardlessness of criticism. To these circumstances our critical etiquette adds weight, forbidding, as it does, the lengthened review of works that have passed once through that ordeal which, although it ought always to be friendly, is often much dreaded. Bowing to the aforesaid laws of etiquette, we shall, nevertheless, scrape down this book on some small spots; not rudely, however, or with the same expectations as the modern progressista, who, on denuding any Russian, says he always finds a Cossack.

Manuals, now-a-days, are not comparable to the rolling stone which gathers no moss. They are in their lives rather like men who, overtaken by corpulence, at last lapse into senility. The book before us began life moderate in dimensions. It then reached the bulk of 496 pages, and now it is grown into 667. In the present instance, we are glad to say that this is not the result of obesity, but of manly growth. The latter, even, we may remind Dr Churchill, may go on to too great an extent. Moderate growth is always more consistent with usefulness and activity than great stature on the one hand, or diminutiveness on the other. There is no reason for this book growing any bigger. If it does so, it will certainly become less useful and less popular. There is plenty of room in its 667 pages for a great deal more new matter, if such must be added at the next edition, which the character of the work leads us to expect soon to see.

In future editions we would recommend the author to omit a very great deal of useless quoted opinion in regard to what is not matter of opinion, but of fact. He, too often (at least for the student), leaves a subject surrounded by a misty halo of learned opinions, where none are admissible; and where, using his own eyes and his own hands, he could easily have enabled himself to describe simply, clearly, and intelligibly for all, what is. In illustration, we take at random the "joints of the pelvis," of which we could specify several brief and excellent descriptions in recent anatomical works. These joints are either erroneously or unintelligibly described; and the discordant opinions of Hunter, Baudelocque, Burns, and Tenon, are mixed up with the account of the pubic symphisis which Gardien defines as "an anthrodial articulation in part, and the remainder a true synevrotic synchondrosis"! Equal imperfection of description, and redundance of quoted opinion, surrounds the subject of the motions permitted by these joints. Ambrose Paré, Severin Pineau, Sigault, Chaussier, Gardien, Matthews Duncan, are arrayed against Denman, Baudelocque, Boyer, Burns, Dewees, etc., and when last seen, were left fighting about the symphisis pubis; whilst the indisputable motions in the sacro-iliac synchondroses, pointed out recently by Zaglas, shown to be of obstetric importance by Matthews Duncan, carefully described by Wood, and observable daily in every dissecting-room, are not mentioned. One other similarly ill-used subject, we shall simply notice. The dysmenorrhœal membrane which Simpson, Coste, and others, have shown by easily understood and irrefragable evidence, to be in the majority of cases, if not in all, the exfoliated mucous membrane of the uterine cavity, Dr Churchill still suspects, with a crowd of learned opinions, to be crouplike membrane exuded, etc. On many other occasions in this work, our author honours the opinions of these gentlemen as if they were facts. Here he treats their facts as if they were opinions to be overturned by authority. An inspection of the first good dysmenorrhœal membrane our author can find, will show him the microscopic and naked eye structures of the mucous membrane of the uterine cavity, and satisfy him more heartily than long wasted midnight oil on learned opinions. The same remarks apply to many long passages on the extremely important subject of the decidua, where our author seems to fluctuate between the old opinions and the new facts, like the gallant Macheath with Polly and her rival, "happy with either, were t'other dear charmer away."

To finish our ungracious list of objurgations,—we recommend the removal of the utterly useless, though beautiful and expensive woodcuts of the featureless "pelves equabiliter justo major et justo minor," and beg in their place the jaw-breaking spondylolisthesis, and the curiously wonderful double oblique pelvis, with remarks thereon. If Dr Churchill is in the habit of seeing such placentæ as he figures in page 102, he should describe them as "Monstrous," for we do not see in Scotland a deep two-banked canal called the circular sinus of Meckel, running round our placentæ, unless it be on some cast in the repositories of an antiquary; on the contrary, the organ fines away into an edge of atrophying and fatty-looking masses of villi. We would have liked to see in the work a little more recognizance of the great new microscopic gospel for all departments of medicine, and of such notable contributors to the obstetric histology as the famous Kölliker. But, lest the general tone of our review should be misunderstood, we have done with this class of remarks.

Want of time, and of paginal space are convenient excuses for our not entering on the practical part of the work. Here Dr Churchill should shine, being a student of opinions of the great: and he does shine. This part of the work is almost necessarily eclectic.

The author or practitioner has to burrow among a mass of opinions and recommendations, all professing to be founded on practical experience. The facts of experience, or cases, are abundant, but they involve so many discordant elementary parts as to destroy their individuality, and thereby much of their value. It is a law in reasoning, that one unstable premise makes an unstable conclusion. How true must this be of a lump of statistics —*alias* a lump of unstable, unindividualized, dissimilar cases— and what must be the nature of the conclusions? The bare facts arrived at by these aggregations are valuable, and obstetricy is under a load of debt to Dr Churchill for his diligent and unwearied accumulation of them. But let us beware of accepting any inference or conclusion therefrom, however evident it may at first sight appear. If such conclusion do not tally with the instinctive opinions of eminent practical men, let us, in the meantime, reject them, not as useless, but as injurious when introduced into practical discussions.

The student of obstetrics, whether tyro or practitioner, will find Dr Churchill's work a valuable companion. It is brought out in that neat, modern, manual style which makes it very attractive to youth. Its well-won popularity will give it a ready sale, and we doubt not that when the next edition is called for, the author will enter the field with all the new discoveries and equipments in obstetrics, carefully demonstrated or turned otherwise to good account.

Homoeopather och Gymnaster, Kritik och Sjelfförsvar. Af D. Stockholm, 1855.

Homœopaths and Gymnasts, a critique and a defence. By D. Stockholm, 1855. Pp. 110.

POSSIBLY, the greater number of our readers may, long ere this, have forgotten wholly an article on Swedish Medical Gymnastics, which appeared so far back as September 1851, in the *Monthly Journal of Medical Science,* now represented by our publication under its present title. In the usual honest discharge of our duty, as sentinels at the avenues of science, it was then our function to warn off a ridiculous intruder, who, having added to a few shreds of recognized truth a whole flutter of those of phantasy, came before the medical world in this strange bedizenment, adopting the name of Kinesipathy, and assuming the title of a system. Our attention was first directed to the subject by a publication in Swedish, understood, and virtually admitted, to proceed from the pen of Professor von Düben of Stockholm, with whose general views we had the pleasure of coinciding. Shortly afterwards, through the medium of another of our contributors, we noticed an attempt to give to the figment an English form and vitality. Since then, having fulfilled our duty, we had left it to its assured fate, having no desire to aid in conferring upon it that continued notoriety by which alone such inanities prolong their existence.

But, if our humble comments had, along with their subject, vanished from the memories of our English readers, their fortune appears to have been very different in Sweden, where they seem to have fallen like a shower of bombs among the abettors of the new system of quackery, the follies of which, and their kindred alliance with of those homœopathy, it was our design to expose. Gathering suspicion from certain indications, which they conceived to exist in our brief strictures, they were pleased to assert that these could only have proceeded from a native of Sweden; and to assume this, and to charge them upon Professor von Düben, who was known to have been resident in England, and whom they now assailed not only as an open enemy but as a lurker in ambush, was but one act with men who had already proved sufficiently, that their common sense was not likely to have much influence in ruling their animosity. The result of this has been a series of sharp skirmishes, chiefly in the columns of the *Östgötha Correspondent*, and in the *Götheborgs Handels-och Sjöfarts Tidning*, but also in the shape of separate pamphleteering, as in the example before us; at least half-a-dozen disputants appearing to have been successively engaged in the contest. Our remarks, or large portions of them, have been translated into Swedish; and even, for the sake of unquestionable reference, have been reprinted, with the English on one page and the Swedish on the other. Upon the whole, we thus appear to have been favoured with an amount of attention, which, on one side at least, we accept as a compliment, and which we certainly anticipated on neither.

A leading charge against the author of the pamphlet, and through him against the supposed author of the article in our Journal, has been that he had assumed his imputed disguise, as much for the purpose of decrying the general literary reputation of Ling, the founder of the so-called system of Kinesipathy, who, singularly enough, had previously attained considerable distinction as a poet, as for the more avowed object of attacking the system itself. Against this charge, and to disclaim a composition with which he had no concern, the writer very naturally seeks to oppose a few arguments and proofs, which are, of course, abundantly sufficient for ourselves, but which are not otherwise unquestionably convincing. Thus, to show that there was no necessity for judging, that the kind of knowledge displayed in the article in our columns demanded the belief that it could only have been written by a Swede, he points out that some of the information, yet only that regarding Ling as a poet, could have been gleaned in England, from the work of the Howitts on the Literature and Romance of Northern Europe; yet he admits, at the same time, that there are indications that the information of the writer went, in some important respects, beyond the sources which could thus be supplied to him. Now, in name of our contributor, we can avouch that he has never even seen the English publication referred to, and, moreover, could not possibly have seen it at the period at which he wrote, for the obvious reason that it was not published till the year afterwards; nor did he rest, for any part of his remarks, upon any other English authority. Neither is he one, we may add, who would desire, without the slightest wish to impugn the possible merits of such authorities, to form his notions, whether of Swedish or of any other literature, upon aids so indirectly acquired. Without a vestige of a personal motive, with no resources but his own research, and no interest but for the purity of science, and, above all, with nothing to disavow or retract, he founded his slight remarks on this merely subordinate question, on certain limited opportunities of his own, and still more on the animadversions of Swedish critics, as he himself stated, and chiefly on those of Lénström, with which he was acquainted directly.

But the writer of the pamphlet offers another proof, that the article in question was not necessarily the work of a native of Sweden, because articles on Swedish medical literature are no such rareties, otherwise, in the pages of the *Edinburgh Monthly Journal*; and he cites, as an example, a notice, in our number for February last, of the Transactions of the Society of Swedish Physicians, the details of which, he is pleased to add, show that its author must be looked upon as "fully master of the language." While we gladly accept this testimony, as evidence, in so far, of the competency of our contributor, and of our own watchfulness over the progress of medical science in what may be considered among the remoter of its fields of honourable effort, it is not very conclusive for its more immediate purpose; because, whoever was the author of the first notice, Swede or not Swede, might very possibly have been the author of the others also. However, we may settle the question regarding the first, and we have no present concern with the others, by assuring our respected friends in Stockholm, that our contributor on the occasion was no Swedish Professor, but a native of this country, who was never even within the limits of the Scandinavian peninsula.

We have no intention of recurring to the subject of the gymnasiarchs. Having had possession of a modicum of derived truth, they have got first to the bounds of reason, and then beyond its pale. It is sufficient to know that they have not the place which they claim in the ranks of legitimate medicine; and to brand them as aliens, and so leave them. Fortunately, we have other ties and recollections which bind us, in gratitude and admiration, to our brethren in Sweden. The country which give birth to Gustavus Adolphus, and which ranks among its natives, Rudbeck, Linnæus, Artedi, Bergman, Scheele, Afzelius, Ihre, Berzelius, Agardh, Wallin, Geijer, Tegnér, and a host of others, many of them living celebrities, must ever have a high claim upon the lover of freedom of thought, of science, and of letters; and it is one which we shall always be happy to acknowledge.

On Caries of the Teeth, and the Cure of Toothache without Extraction; with Explanatory Engravings. By DONALDSON MACKENZIE, Surgeon-Dentist. London: John Churchhill. New Burlington Street. 1855.

SUCH is the title of a somewhat discursive pamphlet of 56 pages, which has been placed in our hands. The author, in his prefatory remarks, recognizes the truth of the proverb, that there is nothing new under the sun; and the perusal of the work before us is certainly suggestive of the same reflection. The object of the author is, in his own words, "The advocacy of a humane and beneficial system of practice, and the introduction (?) of methods which have the recommendation of having been well tried, they having stood the test of twenty years." The humane and beneficial methods referred to, are those generally adopted by dental practitioners; and any modifications of them introduced in this brochure, ingenious though they may be, are merely such as are adaptations every day required by the circumstances of individual cases. However, with the exception of a slightly antiquated tendency in several departments, and a lack of novelty in the information contained in its pages, the book may be serviceable in the hands of such as are not conversant with the subjects of which it treats; and, in some parts, even the experienced dentist may find it not altogether uninteresting.

Part Third.

PERISCOPE.

JUSTICIARY COURT.

The High Court of Justiciary met yesterday (June 4) at ten o'clock—the Lord Justice-General, Lords Cowan and Deas presiding.

THE EARL GREY STREET MURDER.

John Stewart was placed at the bar on the alternative charge of murder or assault. The indictment set forth that on the 17th of March last, he had, within the house of Robert Stewart, a seed merchant or seed collector, Earl Grey Street, attacked and assaulted the now deceased Janet Stewart, knocked her with his fists or some instrument, struck her about the head, chest, sides, abdomen, and other parts of her person, inflicted a cut or wound on her head, broke seven of her ribs, inserted a cork or some similar substance into the larynx or windpipe by which she was choked or suffocated, and otherwise maltreated and abused her, by which she was mortally wounded, and died soon thereafter. The alternative charge was in similar terms, extending only, however, to assault to the danger of life.

The prisoner being asked to plead guilty or not guilty to the charge libelled against him, said—"I know nothing about it, sir."

The case then went to trial.

Sheriff Arkley and Mr Buchanan (Sheriff-Clerk) verified the declarations as having been freely and voluntarily emitted.

Ann Stewart, or Hutton, wife of Stewart Hutton, tailor, at Wright's Houses —I keep a green-grocer's shop in Earl Grey Street. On the 23d March last I recognised the dead body of an old woman that used to come to my shop. She lived in Earl Grey Street with a Robert Stewart. I had last seen her on Saturday 17th March, about half-past ten or eleven in the forenoon; she purchased some vegetables, and appeared quite well and sober.

Robert Dalgleish, butcher, Bread Street—My shop is at the corner of Earl Grey Street. I knew an old woman named Janet Stewart, and had known her for eighteen years. I last saw her on Saturday the 17th March about eleven or twelve o'clock. She purchased some beef and mutton. She appeared sober and clean. I heard that night between eight and nine o'clock that she was dead.

William Fisher, grocer and spirit dealer, Home Street—I know a Robert Stewart who lives in Earl Grey Street. I have seen the prisoner. Robert Stewart and the prisoner came into my shop about twelve o'clock noon on 17th March last and got a gill of whisky. They drank it and then left together; they were only in about five minutes.

Thomas Peebles, hairdresser, Home Street—I know Robert Stewart, who lives in Earl Grey Street; he came to my shop on 17th March last about half-past twelve o'clock to get shaved. He appeared to be much the worse of drink. Prisoner came into my shop that day for the same purpose, a few minutes after Robert Stewart; he seemed to be sober, though he had the smell of spirits, but did not seem to be the worse of liquor. They were not more than five minutes in my shop; Robert had left before John came in.

Elizabeth Macnab—I live with my father in Earl Grey Street, in the same stair-head with Robert Stewart, and next door to him. I left the house about twelve noon on Saturday the 17th March. On going down the stair I saw Robert Stewart and John Stewart. [Identified the prisoner as John.] They were coming up the stair. Robert was just going to ring the bell of his own house.

Cross-examined for the prisoner—There is a lath and plaster partition between our house and Robert Stewart's. I had frequently seen Robert Stewart before. I have often seen him the worse of liquor. I have seen his wife, Mary Stewart, several times. I only saw her three times this year, and she was tipsy each time. I have heard disturbances in the house at times, but paid no attention. I heard no disturbance or cries on the night of Janet's death.

Re-examined—I returned immediately to the house after I went out that day. I know that Mary Stewart, the wife of Robert, is dead; she died since that day I speak of.

Robert Tod, surgeon, Gilmore Place, near Earl Grey Street—I knew Mrs Robert Stewart, who lived in Earl Grey Street. I attended her in April last, and she died during my attendance. I wrote to Mr Lothian when she appeared to be in danger, stating that if a declaration from her was necessary, it would require to be taken now. Eight days after that she died. I saw Mr Hallard, Sheriff-Substitute, in the house the day I wrote the letter to Mr Lothian. Interrogated: Was she able to give a distinct and intelligible statement?

Mr Gordon, for the prisoner, objected to the question, on the ground of general rule and modern practice, witness having been removed. He quoted several authorities to show that in no case had the deposition of a deceased party been admitted, where the party who made the deposition was not the party who was injured.

The Solicitor-General had no doubt it would be found that in the majority of cases the evidence of the injured party would be that most needed, but he saw no reason why the evidence of a dead party not injured, who was free from bias, should be excluded, and that of a party who might have been engaged in a violent quarrel, and perhaps the aggressor in the quarrel, admitted. Such a course was, in his opinion, entirely opposed to the general principle, regarding the admission of hearsay evidence of dead parties, which prevailed in all courts.

Their Lordships would give their decision upon the point after hearing the circumstances under which the deposition was taken.

Frederick Hallard, Sheriff-Substitute—On the 2d April last I went to the house of a man named Robert Stewart, at the desire of the Procurator-Fiscal, and took Mr James Craig, a clerk, with me, for the purpose of taking the deposition of Mary Stewart. I found her in bed, apparently unwell, languid. She seemed to be capable of making a distinct statement. I put her upon oath and took her deposition. Mr Lothian was present, and also a criminal officer. The surgeon (Tod) was occasionally present. I asked Tod if the witness was now in a state to be examined, and his answer led me to go on. When the witness was getting feeble and tired once or twice, I called in the surgeon; and always went on to examine when he gave his sanction. I had no doubt she was in a state to give an intelligible deposition. I carried the deposition to a conclusion, that is, I got from her all the evidence she had to give. The Procurator-Fiscal sometimes suggested questions which I considered whether I should put them or not. I am not aware whether Mrs Stewart believed herself to be dying at the time. I did not ask that question. I believed she was in her sound and sober senses during examination, and I believe so now. Being shown the deposition referred to, witness said—That is it. She was unable to sign it; I signed it. It was written by Craig to my dictation. It bears that she was purged of malice and partial counsel. I put these preliminary questions. The prisoner was brought in, and she was asked if that was the person to whom she had referred in her deposition. She said, yes.

James Craig, the clerk who wrote the deposition, repeated the evidence of Sheriff Hallard. The deposition contains the very words which were uttered by Mrs Stewart, and the whole that she said upon the subject.

Dr Tod recalled—Before I wrote the letter to the Procurator-Fiscal I had made up my mind that Mrs Stewart was dying. I expressed my opinion to that effect to her husband and to a Mrs Miller; Mrs Stewart might have heard me—the statements were made at the bedside. I am not aware that she actually did hear. I considered Mrs Stewart in a state to make an intelligible statement when the Sheriff was there, and was so during the whole time the deposition was being taken.

Euphemia Clark or Miller, widow, residing in the West Port—I knew Mrs Robert Stewart that lived in Earl Grey Street. She died on the 8th of April. Before the Sheriff came, Dr Tod led me to suppose that she was in a very dangerous state. Mrs Stewart might have heard him saying this. I don't recollect of saying anything after this to Mrs Stewart about her danger. Before the Sheriff came, she mentioned to me that she thought she was dying. When taken to jail under suspicion in connection with this case, she stated that she thought she would not come out of it.

The Lord Justice-General now gave his opinion regarding the admissibility of the evidence that had been objected to. His own recollection, he thought, could have suggested more than one case in which the evidence of persons deceased had been admitted in criminal trials; but after the discussion which had taken place, the instances that had been adduced, and the authorities that had been quoted, all doubt upon the subject was removed from his mind. He thought it was competent to receive in evidence the deposition of a party deceased, other than the person who had sustained the injury, and considering the circumstances connected with the deposition now objected to, he was quite satisfied that it was receivable evidence, and he did not find that any authority had been cited against that evidence.

Lord Cowan concurred in the view taken by the Lord Justice-General, and Lord Deas thought it would be a very serious matter, that whenever the principal witness, on whose evidence the conviction of a criminal chiefly rested, happened to die, the culprit was to escape conviction and punishment. He never believed this to be the criminal law of Scotland; and certainly the admission of the evidence of a deceased party in these circumstances was absolutely necessary for the ends of justice.

The following deposition was then read:—

At Edinburgh, and within the house there of Robert Stewart, Earl Grey Street, the second day of April, eighteen hundred and fifty-five years, in presence of Frederick Hallard, Esq., advocate, Sheriff-Substitute of Edinburghshire, appeared Mary Sutherland Stewart, wife of Robert Stewart, a seed collector, residing at Earl Grey Street aforesaid, who, being solemnly sworn, purged of malice and partial counsel, and interrogated:—Depones I am the wife of the said Robert Stewart, we have lived in our present house two years come next Whitsunday. John Stewart is said to be a son of my mother. John Stewart was said to be a bastard son. John Stewart lived in our house only a fortnight before Janet Stewart's death, and he was, during that time, in my husband's employment. The deceased, Janet Stewart, who was my father's sister, lived in the family with us since our marriage, which took place about eight years ago. She acted as a servant. She just got her clothes and maintenance. Janet Stewart was a very industrious woman, of good character, but she occasionally got tipsy. Janet slept in the dark closet bed, which closet enters from the passage. My husband and I have always slept in the concealed bed off the kitchen. During the fortnight that John staid with us, he lay on a buffalo skin, on the floor of the front room. No one slept in the light bed-closet off that room. My child Malcolm either slept with Janet Stewart or with my husband and me. He would not sleep with Janet when she was tipsy. I have been poorly for some time back, and was unable to rise on the morning of the day on which Janet died. On that day Janet rose at her usual hour, being about eight o'clock in the morning. She was in her usual health. She was then sober, and from my bed I saw her going about the kitchen working. Somebody brought whisky into the house that morning, but who it was I do not know. I did not see John give any whisky to Janet that day. I do not remember when my husband rose on the morning of that Saturday, but he was very drunk when he went to bed on the night before. There was whisky being drunk among them after my husband rose, in the course of that Saturday forenoon. I got no whisky that morning, only a glass of wine, as I was poorly. Mrs Miller, who has occasionally assisted in the work of the house since the death of my sister Jane, was engaged in doing so on that forenoon. She went away after she had been so engaged for a time, and when she was gone, no one remained in the house except John Stewart, Robert Stewart, and my boy Malcolm, Janet Stewart, and myself. In consequence of the noise they were making in the kitchen, I rose, and went to lie down in Janet's bed in the dark closet off the lobby. I cannot tell what o'clock it was when I rose, and I do not remember whether Mrs Miller had left the house at that time or not. I was in a very weak and dozing state that forenoon, and fell asleep every now and then, both in the bed in the kitchen and in the lobby bed, when I went to it, as before deponed to. After a time—but I can give no notion of the hour—Janet Stewart came to me when I was in the lobby. She was tipsy, and I said to her—oh, auntie, how have you got yourself in that state, and me so unwell, and no one to attend to the door. She gave me no answer. I saw she wanted into her bed, and I therefore rose from it, and went to my own bed off the kitchen, and lay down in it. At that time my husband was lying drunk on the floor of the kitchen. John Stewart was at that time sitting on a chair beside the kitchen fire, with his head drooping over to his knees. He was evidently the worse of drink. My little boy was not then in the kitchen. Mrs Miller was not in the house at that time, neither was Lawrie, who is in my husband's employment, and who had come that morning to get the keys of his place of business. After my return to the kitchen bed, my husband rose with difficulty from the kitchen floor, and lay down on the front of the bed, outside the bed clothes. I lay between him and the wall, under the clothes. Before I fell asleep I heard Janet in the kitchen speaking to John. I recollect, also, that my boy Malcolm was then in the kitchen, for I remember hearing him saying to John Stewart, "What way are ye sitting up there." At this time John Stewart, Janet Stewart, and my boy were in the kitchen, and no one else—my husband and I being in the concealed bed off the kitchen. By and by I heard a cry of "Oh, dear," from Janet Stewart; and I heard John Stewart call her all sorts of names for drinking his whisky. I heard him say to her, "You have got but one eye, but by God I will do that to ye that ye'll no have another." At this time my boy Malcolm, who had been amusing himself sailing a wee boat in the sink, fell a greetin'. I heard John Stewart say, "I have broken your ribs on one side, turn round on the other side and I will give you the same." I was very much frightened at this time; I dared not rise. I then heard John Stewart tell Janet to get up and make the dinner; I did not hear the sound of kicks, blows, or struggles, but John Stewart was ferocious at this time, like a wild bear. After a time I got up, and saw Janet lying on the kitchen floor, with her head to the window and her feet towards my bed. John Stewart came to the bedside, at which time no one, so far as I know, had come into the house, and touched Robert, my husband, and said, "Rise, Robert, for Janet is gone." I then sent my boy away with a message to Mrs Miller, to come away directly. When I rose, as already deponed, and saw Janet lying, my impression was that John had killed her. I did not say anything to John, who went out of the kitchen before Mrs Miller came. When I rose, as already deponed, I felt sure, on seeing Janet lying on the floor, that John had killed her; but I did not charge him with it, because I was frightened, he was so ferocious like. My husband had not stirred 'till John came to the bed side and said, "Rise, Robert, for Janet is gone." Neither he nor I ever lifted our hand to Janet. When I rose, I went to the body of Janet Stewart, I put my hand on her bosom, it was warm, but she was quite dead. There was no cap on the head of the body; in the morning, when she was going about the kitchen, she had her cap on as usual. I identify it as the cap now shown to me, which is in the possession of Abijah Murray, Sheriff-officer, Edinburgh, and which is labelled and marked by the Sheriff-substitute as relative hereto. The cap was found on Saturday last, in my presence, by Mrs Miller, under a bonnet-box standing below my bed; Mrs Miller, on pulling it out, showed it to me, and I gave a great skreigh as I recognised it to be the cap belonging to Janet Stewart, and as I saw that it was stained with blood, and her hair sticking to it. I did not put the cap in the situation it was found, and I never saw it between the day on which Janet Stewart died and the day on which it was found. On the evening of the day on which Janet died, Lawrie came to the house with the keys, and then went for Dr Tod. After John Stewart left the kitchen, I understood that he went to the lobby bed; but next morning, when the milk came, it was found that he was away, and I did not see him again till I saw him after his apprehension. He did not tell me, nor any one in my hearing, that he intended to go away. We kept the house door locked during the whole of Sunday, and tied up the bell, as we were afraid of his coming back. Depones, I can give no explanation as to the cork which is said to have been found in the throat of Janet Stewart. I never saw or heard of a cork being put into the body to prevent matter from coming out of it into the coffin, or for any purpose whatever; and being shown a man in custody, states his name to be John Stewart, depones that man is the person to whom I have referred as John Stewart through this deposition. All which I depone to be truth, as I shall answer to God: And further depones, I cannot write at present, from indisposition and my position in bed.

(Signed) FREDERICK HALLARD.
JAMES CRAIG.

Malcolm John Stewart, son of Robert Stewart, before designed, a boy aged about seven or eight years—We had an aunty that lived with us, called aunty Janet. She is dead now. I don't remember what day of the week she died; I was in the house that day. My mother, and my father, and John Stewart, was also in the house at that time. John had been living with us for some time before that. I saw my aunty preparing for dinner that day. My father was lying upon the floor, and my mother in the bed entering from the lobby. He cried to my mother to help him to his bed. She did not come. My father then went to the kitchen bed. My mother also went to the kitchen bed after this. When they both were in the kitchen bed, I saw my uncle kick my "granny;" I mean by my "granny" my aunty Janet. She was lying on the floor when my uncle kicked her. I did not see "granny" take the pot off the fire. John Stewart was sitting at the side of the fire when I came into the kitchen. When he kicked her, she said "Oh, dear." He kicked her on the head, then upon the back, and said he would gi'e her't on the soft side of the flank. When he said this, he kicked her on the side, and she said, "Oh, dear." He had boots on when kicking her. After this he sat down again. I took aunty by the hand, when she was lying on the floor, and asked her to come to her bed. She gave me no answer, and I did not hear her speak after that. I went out to play with another laddie, but did not remain long. When I came back my aunty was lying on the floor where I left her; and uncle John was still sitting at the side of the fire. My mother was still in bed, and my father was on the floor. I did not see uncle John go out. My mother sent me for Mrs Miller, but before going I went into the kitchen and looked at granny on the floor. Her face was all white, and something was coming out of her mouth like blood. Uncle John was in the kitchen when I went for Mrs Miller. I was to tell her that granny was dead. When I returned, along with Mrs Miller, uncle John was still in the kitchen, at the side of the fire. He went out of the house after it was dark. I saw no other person strike or hurt granny in any way that day. Some person came to the door next day, and rang the bell. Mrs Miller opened the door; she then shut the door and locked it, to keep out the person. I saw my mother rise out of her bed, after the kicking, and come into the kitchen for a drink of water. My uncle was then sitting at the fire.

Cross-examined for the prisoner—My mother had no quarrelling with Janet that morning. I recollect of granny putting a whisky-bottle to her mouth that morning. My mother took the bottle, and quarrelled her for taking her whisky. This was in the kitchen. I have seen my father and my granny both "fou," but they never quarrelled. My mother was in the bed off the lobby when John was kicking granny. I'm quite sure of that. My father was lying on the kitchen floor, with his head to granny's, when I came in. My mother told me to say, in regard to what took place that day, that Janet was taking a pan off the fire, and was about to let it fall, when John griped it, and that then Janet put her foot into a hole in the floor and fell backwards. I know Peter Stewart, my uncle; I did not say to him and his wife and Mrs Colquhoun that my mother had asked me to say that I saw John kicking Janet. I don't recollect saying that in Peter Stewart's house, or anywhere else.

Re-examined—My mother was in the closet bed when the kicking was going on. (Identified the prisoner.) After rising for a drink, she returned to the closet bed. When she asked me to go for Mrs Miller, she was kindling the kitchen fire, which had gone out.

Robert Stewart, father of last witness—I have been two years in Earl Grey Street. My wife's name was Mary Stewart. She is dead now; she died hardly a month ago. My apartments are on the second flat of the house. There was an aunt of my wife that lived with us in March last. She had lived with us for nearly twenty years, and worked as a servant. I mind on the Saturday when she died. The prisoner was living in my house that day, and had been so for a month before. My wife and I slept in the kitchen, and Janet slept in the passage bed. On the morning of Saturday that Janet died, I was up before her. She was going about the house that day quite well. I went to Peebles' shop to get shaved about twelve o'clock that day, and the prisoner came in after I was shaved, but just before I left. Prisoner and I went to Fisher's shop and had a dram, and then went home after twelve o'clock. When I went in I saw Janet, and she was in good health; not quite sober, but not much the matter with her. The prisoner came in with me, and took a pint bottle of whisky with him, which he had bought at a neighbouring grocer's. My wife was in the house at the time, and my boy Malcolm. All the whisky was drunk amongst us; there is no mistake in that. After the drinking, I went into the kitchen bed and fell asleep. When I awoke, my wife was in the bed with me. It was some noise that wakened me. I looked out of the bed, and saw Janet lying on her back before the sink. Interrogated—Did she speak? Witness (laughingly)—Oh, no, sir, she did not speak.

The Lord Justice-General—It's a very important matter whether she was able to speak or no, and is not a subject for laughter.

Witness—Oh, no, sir.

The Lord Justice-General—Then what are you laughing at? Did she speak to you?

Witness—No, sir, she did not speak—the woman was gone. I did not see John in the kitchen, but the boy was there, I saw no person do anything to her. I heard a noise, and the boy was going about at the time; I thought he had made the alarm. This alarm was a noise to attract attention; it was a loud voice of alarm. I was the worse of drink when I heard this noise. The prisoner did not come to me when I was lying in bed. Interrogated: Did your boy tell you anything of what had happened in the kitchen on that occasion?

Counsel for the prisoner objected to the question, and the witness was withdrawn.

Their Lordships overruled the objection.

Witness recalled—The boy did not tell me what had happened before he was sent for Mrs Miller, but he did so after he returned with Mrs Miller. He told me that the prisoner had struck her—kicked her with his feet. He said nothing more.

Cross-examined for the prisoner—John was the worse of drink that day. My wife had been drinking a little that day too. When I saw Janet lying near the sink, I immediately got out of bed, and went to the body. I then called to my wife, who got up also. It was I that first called her attention to Janet's body. I never saw John till Tuesday following. I was taken up by the authorities with reference to this case, and kept in jail; and also my wife. I don't recollect of lying on the floor myself that day. Janet was often the worse of drink for two or three years past, but not before that. Janet was near eighty years of age; but I don't know exactly.

Euphemia Clark or Miller, recalled—When I was sent for, I went to the house of Robert Stewart between five and six, and found Janet lying on the floor of the kitchen, dead. She had not been dead for more than hour, for she was warm about the chest. I said I would require assistance to dress the body, and I went and got Mrs M'Naughton; and after that Mr Lawrie came in, who was sent for the doctor. I saw Dr Tod examine the body. I did not notice any injuries about the person, but in moving the head my hands got besmeared with blood. We put nothing into the mouth, and saw nothing put into it. Mrs Stewart told me that the prisoner was in the passage bed at that time. At Mrs Stewart's request I remained in the house with her all night. The prisoner came to the door about five o'clock on Sunday afternoon, and I shut the door upon him, not by Mrs Stewart's orders, but because his elder brother (Donald) came to the house in the forenoon, wanting whisky, and I had none to give. I visited Robert's house on Friday the 16th, when Janet opened the door to me, and said that John wanted Robert to kick her (Janet) out of the door. I attended Mrs Stewart when she was unwell, and found a cap under the kitchen bed, with blood on it and a considerable quantity of hair. (Identified the cap.) It belongs to Janet. She had a cap like it on in the morning.

Cross-examined for the prisoner—When I went to the house on Saturday night, Robert was much the worse of drink, and Mrs Stewart had also been drinking a little. I was told that Janet had fallen on the fender, and I told the doctor so. The doctor said to me that he thought she was dropsical, and that very little would hurt her.

By the Lord Justice-General—I saw nothing about the body indicating broken ribs.

Jean Campbell or M'Naughton, wife of James M'Naughton, police constable—I was asked to assist in dressing the body. When I went to the house, Mrs Stewart seemed to be in distress.

James Lawrie, for some years employed by Robert Stewart, a previous witness—I went into the room of the house on Saturday night, and saw Robert Stewart and his wife. I said this was a horrible job that had happened—how did it occur? Mrs Stewart said—that blackguard or that vagabond, I don't recollect which word she used. I said it was a pity she was not out of bed at the time, because she might have prevented it. She replied that she dared not have meddled. He would not have struck you, said I. It would not have been the first time, said she. I understood her to apply the term blackguard to the prisoner.

James Muirhead, wright and undertaker, Dunbar Street—Mrs Stewart appeared exceedingly anxious to have the coffin made that night (Saturday night), as the doctor had pronounced water in the body. She was almost insensible with drink. When in liquor she used to run from one story to another, and rave up and down, sometimes singing and sometimes rhyming poetry. She called at my house one day in a reeling state of stupefaction, crying out for the large quantity of gold she had lost.

James Ramsay, shopman to Charles Taylor, grocer, Earl Grey Street—The prisoner was in our shop on Saturday morning the 17th March, making some purchases, but I don't know what they were. Being shown a cork, witness deponed—That is a cork from our shop; I know this from the impression of my master's name, which it bears.

Margaret Stewart or Shaw, wife of Alex. Shaw, tailor, Clarence Street—Robert Stewart is my brother, and I knew Janet Stewart. I heard of her death on Sunday, and went to the house on Monday morning at ten o'clock. Mr and Mrs Stewart were in the kitchen bed; when the latter saw me, she gave a loud scream, and said this was a terrible thing that had happened. She said nothing more, but moaned, and conducted me to the room where the body lay, and said, "That is a murdered woman."

Counsel for the prisoner objected to farther hearsay evidence from this witness, on the ground that Mrs Stewart's deposition had already been admitted in evidence; but the objection was repelled.

Examination continued—I asked Mrs Stewart who had committed the murder, and she said "that blackguard;" I asked who she meant, and she said it was John, her brother. She then stated that as Janet was taking a goblet off the fire she let it fall, and John, in the act of catching it, threw her down and then kicked her. She also said, that when inquiry came to be made into the cause of the sudden death she intended to tell the truth. I said it would be hard for her to tell against her own brother; she said she would tell the truth and free the innocent, for she had never seen Robert lift his hand to either Janet Stewart or Jane Stewart.

Daniel Stewart, labourer, Lady Lawson's Wynd—Mary, wife of Robert Stewart, was my sister. On the Sunday afternoon that the prisoner was refused admittance into Robert Stewart's house, he came to my house about eleven o'clock, and stopped with me till Tuesday. In the conversation I had with him relative to the death of Janet Stewart, he said they wanted to leave him in the habble, to blame him and clear themselves.

Cross-examined for the prisoner—When I went to the house on Saturday night, John Stewart was in the passage bed, and would not waken for me then; but he rose about eleven or twelve o'clock, and went into the room. All I heard about the cause of death was Mrs Miller scolding John very much about it. I never saw prisoner in a passion, and when in drink he was very quiet. Janet, his aunt, brought up the prisoner in his early days, and he was very fond of her.

Peter Maloney, criminal officer, was next examined.

Dr Tod, partially examined formerly, said the air that was under the skin about the sides of the body tended to prevent broken ribs from being observed. The wound on the head was not sufficient to account for death. On the Tuesday after the death, a *post mortem* examination of the body was made by Dr Littlejohn and himself. (Witness here read the joint report of the examination, which they had drawn up.)

The presence of the cork in the place we found it would have produced immediate death. It was impossible for the cork to have got there by mere accident.

The broken ribs and the penetration of the lining membrane of the lung by some of these ribs, would not have produced so sudden death, though of course they assisted. Blows or kicks would account for the fractured ribs but not the fall. Nothing but direct violence could have caused the fracture of the ribs.

Cross-examined for the prisoner—These ribs might have been broken by more than one fall, if from a height. Janet, the deceased, was intemperate, as was also Mrs Robert Stewart. I attended the latter twice in "delirium tremens" some years ago. The appearance of the body did not suggest the idea of dropsy; and I never said anything to that effect to any one. On one of the occasions that she had "delirium tremens" she leaped out of a window.

Re-examined—Apart from the cork in the throat, the other injuries would probably have produced death that night. By a fall even from a height I don't think the ribs would have been fractured at the parts they were.

By the Court—Appearances were such as to leave no doubt in my mind that the cork must have been introduced into the throat during life. The congested state of the vessels led me to believe that death was caused by suffocation.

Dr Littlejohn, Police Surgeon—I was led to believe that the cork was introduced during life and not after death, because it was lubricated with frothy mucus—the mucus being the same as that found in the air passages below, and from the mucous membrane below the cork being highly congested and the vessels injected, whereas in the membrane above these appearances did not present themselves.

The prisoner's declarations were then read as follows:—At Edinburgh, the twentieth day of March, eighteen hundred and fifty-five years, in presence of Patrick Arkley, Esquire, advocate, Sheriff-Substitute of Edinburghshire, John Stewart, at present in custody, being brought for examination, declares—I am about forty years of age. I was born in Edinburgh. I am a labourer, and I reside with my brother-in-law, Robert Stewart, a seed merchant, residing in Earl Grey Street, Edinburgh. I am not married, and being interrogated, declare I did not assault Janet Stewart in any way last Saturday, or at any other time. If any marks of violence are on her person, they have been caused by her falling while she was intoxicated; she was very much given to drink, and last Saturday, when I went into the house where she lived, I found her lying on the floor quite drunk. This would be about two o'clock P.M. of

Saturday; I had not been drinking with her that day previously when I found the said Janet Stewart lying on the floor. I called my sister and told her to attend to her. I was drunk at that time, and cannot say that I recollect well what took place. All which I declare to be truth.

(Signed) JOHN STEWART.
P. ARKLEY.

At Edinburgh, the twenty-second day of March, eighteen hundred and fifty-five years, in presence of Patrick Arkley, Esq., advocate, Sheriff-Substitute of Edinburghshire, John Stewart, at present in custody, being brought for further examination, and the declaration emitted by him on the 20th of March current, and which is docqueted, and the docquet subscribed by the declarant and the Sheriff-Substitute as relative hereto, being read over to him, he declares, I adhere thereto; and further declares, my brother-in-law, Robert Stewart, and I went last Saturday forenoon to a barber's shop, in Home Street, to be shaved. On leaving it we went into Fisher's public-house, in that neighbourhood, where we had a gill of whisky between us. We then went to Robert Stewart's house. I took in with me a bottle of whisky, which I bought in a public-house close by the entry to Robert Stewart's house. On going in we found Janet Stewart, now deceased, lying on the kitchen floor, and my sister Mary was lying in a boxbed in the kitchen. We did not touch or speak to Janet, but Robert and I sat down by the fire and drank the whisky. After about an hour I fell asleep, and slept, I think, for about an hour. I believe I must then have gone to bed in the closet, which is in the lobby, as I found myself in bed about ten o'clock in the evening; but I was so drunk, I have no distinct recollection of having gone to bed. During the time that I was drinking whisky at the fireside, as above spoken to, Janet was lying on the kitchen floor. I did not speak to her nor she to me. When I awoke, about ten o'clock, I then, for the first time, heard that Janet was dead. It was before I fell asleep, the first time, that I called on my sister to attend to Janet, but I do not know whether she heard me or not, I did not see her come; I did not strike or kick Janet in any way on that day. The boy, Malcolm Stewart, was not in the house when Robert Stewart and I went in, and I did not see him in the house that afternoon at all. Declares, last Saturday, I was in Stewart's house during the afternoon before I went to the barber's. I do not remember of seeing Janet on that afternoon at all, but I remember of seeing Mrs Miller cleaning the house that forenoon. I heard nothing wrong about Janet Stewart before I went out to get shaved. If Janet's ribs were found broken, I cannot explain how that could have happened. Declares, during the time that I was drinking at the fireside, after I was shaved, I heard Janet moaning as if she were choking, as she generally did when she was drunk. I paid no particular attention to it. Being shown a cork to which a label is attached, and which label is signed by the declarant and Sheriff-Substitute as relative hereto, and being interrogated:—Declares, I drew so many corks on said Saturday that I cannot say that I ever saw it before, and if a cork was found in Janet Stewart's throat I cannot tell who put it there; I did not at any time hear anything said about putting a cork into Janet Stewart's throat for any purpose; I never heard Janet complain at any time of having loose teeth. All which I declare to be truth.

(Signed) J. STEWART.
P. ARKLEY.

The evidence for the prosecution being now finished,

Peter Stewart, ryegrass seed merchant, Lauriston, was examined as an exculpatory witness—I am a brother of Mary Stewart, wife of Robert Stewart. Prisoner was in my employment about three months before he went to Robert Stewart. He often went to Robert Stewart's house when in my employment, and I remonstrated with him for doing so, because drink was always going there, and because I thought some disturbance would arise from it. I have often seen Janet Stewart fall when intoxicated; the last time I was in the house she got a bad fall, and Robert and Mary paid no attention to her.

Robert spoke harshly to her at times, and she came to my house sometimes, complaining that she had been put out of the house by my sister Mary. Robert was very passionate when the worse of drink.

Ann M'Craw or Stewart, wife of the last witness—The boy Malcolm said in presence that he had not seen John strike Janet; and I asked him why he went and told that he had seen John striking her. To this the boy replied, that his mother had told him to say he had seen him strike her.

Mrs Colquhoun—I am the sister of Janet Stewart, who died on the 17th March. I recollect of being in the house of Peter Stewart after Mary Stewart's funeral. The boy Malcolm Stewart was present on that occasion, and I asked him if he had seen John kick or abuse Janet; he said "No, for he was out." It was his mother, he said, who told him that John had meddled his granny.

The case being now concluded, the Solicitor-General addressed the jury for the prosecution, and Mr Gordon for the prisoner.

The Lord Justice-General addressed the jury. He stated one thing was evident, indeed it had not been seriously disputed on either side, that a murder *had* been committed. The whole question then was, who perpetrated that murder? and here the question was very much narrowed by the circumstance that there were only four persons in the house at the time the deed was done. After going over the evidence, and remarking on the incidental testimony, his lordship stated that it was for the jury to make up their minds whether they believed this testimony. If they did, they must find the pannel guilty, however painful the duty; if, on the other hand, they entertained rational doubts, they were to give the pannel the benefit of these.

The jury then retired, and after being absent for about a quarter of an hour, returned with a verdict of "Not Proven," and the pannel was dismissed from the bar.

STATISTICS.

THE INFLUENCE OF VACCINATION ON THE RATE OF MORTALITY IN FRANCE.

BY DR BERTILLON OF MONTMORENCY.

The following is a *resumé* of a paper which has been submitted for examinato M. Villermé, whose competence for such a task is well known, and upon which he has expressed his decided opinion of the correctness and legitimacy of the conclusions drawn by the author from the different documents and statistics made use of in its compilation.

The benefits of vaccination, tested with so much success for upwards of three quarters of a century, appear to be at the present day unknown to a great mass of the population, since, in 1850, nearly one half of the number of children born were neglected in this respect, and that too at a time when every effort was being made by the Academy of Medicine and the practitioners of France, to extend and publish the advantages of the discovery. The opponents of vaccination rest their assertions upon statistics which are of a nature so deceptive that the doctrines founded on them will, upon examination, be seen to be far from correct. It has been asked by M. Malgaigne, "Is it true that, previous to the discovery of vaccination, a greater proportion of individuals arrived at the age of maturity? The question is a simple one, and is a matter in which the data afforded are well worthy of discussion. By the application of numbers to facts, observation becomes multiplied by itself. If the data be true, accept their signification; if false, at once assert and prove it." The new doctrine maintains that, since the last century, the mortality in France between the 20th and 30th years is doubled, and attributes to the greater prevalence and fatality of *typhoid fevers*, this increase in the number of deaths. But there are no tables upon which this allegation can be justifiably based, as medical statistics, properly so called, are mostly confined to the present century, and there is scarcely a single document of this nature to be found relating to past centuries. To the labours of a few individuals, however, we are indebted for such statistics as will enable the question to be set at rest, so far as relates to the increased mortality between 20 and 30 years of age, during the present century, or in other words, since the introduction of vaccination. We have, as a mortality table for our own time, a work compiled during the period 1840–49 by M. Heuschling, secretary of the statistical committee of Central Belgium. For the second half of the last century, we are less favourably situated, but we can confidently appeal to the labours of several esteemed authorities, such as Montyon, Messance, and Duvillard.

Montyon, in 1774, published his *Recherches et considérations sur la population de la France;* Messance wrote in 1766 and 1788 his *Recherches sur la population française dans diverses généralites;* and Duvillard, so late as 1806, published his celebrated *Analyse de l'influence de la petite vérole sur la mortalité.* We have thus three tables exhibiting the mortality in France for the second half of the 18th, and one for the middle of the 19th century, and from these we subjoin the following extracts :—

TABLES OF MORTALITY. (A.)

Ages.	Montyon. 1774.	Messance. 1788.	Duvillard. 1806.	Heuschling. 1840-49.	
0 to 5	470.15	400	416.85	340.30	
5 ... 10	52.20	67.5	32	40.70	
10 ... 20	44.70	59	48.90	47.85	
20 ... 30	62.85	68	64	72	
30 ... 40	72.95	64.4	68.80	59.40	
40 ... 50	70.80	68.1	72.35	67	
50 ... 60	71.80	74	83.50	77	
60 ... 70	70.65	86.8	95.90	110.60	
70 ... 80	61.69	73.5	83	118.90	
80 ... 90	19.25	33.5	30.87	58.60	
90 ... 100	2.96	4.8	3.62	6.90	
100 ... 105	0.	0.4	0.21	0.15	
Total, .	1000	1000	1000	1000	décès.
Vm. = P·/N.	23.94	27.9	28.26	34·24	Vie Moy.

TABLES OF POPULATION. (B.)

Ages..	Montyon.	Messance.	Duvillard.	Guillard after Heuschling.	Census of 1851.
0 to 10	254	241	214.40	197	185.25
10 ... 20	193	180.50	186.30	175	176.20
20 ... 30	148.75	158	165.60	157	163.15
30 ... 40	135	134	141.40	137.60	147.50
40 ... 50	123	110	116.75	119	124.70
50 ... 60	76	84.75	89.40	98	101.50
60 ... 70	49.45	55.75	57	70.70	64.70
70 ... 80	18.15	27	24.40	36	30.20
80 ... 90	2.04	79.0	4.50	8.93	6.34
90 ... 100	0.61	1.03	0.44	0.76	0.45
100 ... 105	0	0.07	0.01	0.01	0.01
Total, .	1000	1000	1000	1000	1000

In calculating according to these tables, all that is necessary is to multiply any of the numbers indicating the *population* at any particular age by the number marked v. m. (vie moyenne), and divide the product by the number in the other table indicating the *deaths* (décès) at the same age. This will give the *chance* of death at that age.

Upon this principle the following table is constructed:—

CHANCE OF DEATH AT EACH AGE. ONE DEATH IN

Ages.	Montyon.	Messance.	Duvillard.	Guillard after Heuschling.	Census of 1851.
0 to 10	12	15	13.5	18	17
10 ... 20	103	85	106	124	132
20 ... 30	57	65	73	74	80
30 ... 40	44	58	58	79	89
40 ... 50	42	45	46	61	66
50 ... 60	25	32	30	43.50	47
60 ... 70	17	18	16	22	21
70 ... 80	7	10	8.3	10.35	9
80 ... 90	2.5	6.5	4.2	5.20	4
90 ... 100	5	5.8	3.5	3.60	2.37
100 ...	1	1	1	1	2

The result, as shown in this table, clearly demonstrates that the general mortality in France, between the 20th and 30th years, far from having doubled or even increased, has, not only at that period but at all ages, diminished since the 18th century. Before such evidence the assertions of the opponents of vaccination fall to the ground, and it only remains for us to examine more specially the arguments upon which the statistics drawn up by them may be confuted.

In place of collecting their statistics in *all* the departments of France, the anti-vaccination party content themselves with those of *two*, namely of la Côte-d'Or, where most vaccination takes place, and of l'Aveyron, where it is least practised. And in order to exhibit the deplorable effects produced by its agency, they write to the Academy of Sciences (Comptes Rendus 10th Sept. 1849) that in fifteen years the population of every age has increased twice as much in l'Aveyron as it has done in la Côte-d'Or, etc., etc. Other causes, however, can be adduced in explanation of the apparently great proportional increase of the population in l'Aveyron. First, the increase of a population occurs in the inverse ratio of its density; accordingly, l'Aveyron having a smaller population than la Côte-d'Or, with an equally great extent of surface, the number of its inhabitants should increase more rapidly: and, second, a population becomes more speedily increased with the advancement of trade and industry; and the extensive industrial establishments recently founded in l'Aveyron have led to the return in the Census of 5920 workmen there, while only 3783 are returned for la Côte-d'Or.

In drawing these conclusions from only two departments, we are merely attacking our adversary on his own ground, but we cannot conclude without repudiating such a system for obtaining statistics to be employed in such general questions as the present. In all investigations of this nature, if anything like a scientific method is to be followed, *all* the departments should have been arranged, first according to the numbers vaccinated, and then according to the rate of mortality considered in connection with these.—*L'Union Médicale*, Aug. 28, and Sept. 11, 1855.

MEDICAL EXAMINATIONS IN SCOTLAND FOR LIFE ASSURANCE COMPANIES.

The following table, compiled from the last reports of the fourteen Scotch Assurance Offices, is interesting in many points of view; but we draw attention to it mainly because we are thereby enabled, for the first time, to make a nearly correct estimate of the number of persons annually examined in connection with life assurance by the medical practitioners of Scotland.

	New Entrants during Last Year.
1. Caledonian Insurance Company. * Principal Medical Officer.—Dr Henderson.	
2. City of Glasgow Assurance Company † (probably), Principal Medical Officer.—Dr John Macfarlane, Glasgow.	400
3. Edinburgh Life Assurance Company.* Principal Medical Officer.—Dr Douglas Maclagan.	
4. Life Association of Scotland, Principal Medical Officer.—Dr Newbigging.	1184
5. National Insurance Company† (probably), Principal Medical Officer.—Dr Hunter.	300
6. North British Insurance Company, Principal Medical Officer.—Dr Burt.	528
7. Northern Insurance Company, Principal Medical Officer.—Dr Leslie, Aberdeen.	697
8. Scottish Equitable Assurance Society, Principal Medical Officers.—Dr Pagan, and Dr Combe.	628
9. Scottish Amicable Assurance Society, Principal Medical Officer.—Dr Gibb, Glasgow.	732
10. Scottish Provident Institution, Principal Medical Officer.—Dr James Duncan.	577
11. Scottish Provincial Insurance Company.* Principal Medical Officer.—Dr Dyce, Aberdeen.	
12. Scottish Widows' Fund Assurance Society, Principal Medical Officer.—Dr Begbie.	638
13. Scottish Union Insurance Company. Principal Medical Officer.—Dr Maclagan.	
14. Standard Assurance Company, Principal Medical Officer.—Dr Christison.	1046

* These four Companies do not publish the extent of their business, but the aggregate number of their entrants is probably under 1000.

† As the City of Glasgow Company and the National Company publish their Sums Assured, this estimate of the number of their entrants must be nearly correct.

The total new entrants of the Scotch companies during last year are thus shown to be 7500. It may be safely assumed that about a sixth more or 1200, were either rejected by the medical officers, or did not carry into effect their proposed assurances; and further, that about one-third of the business of the Scotch offices is transacted in England and Ireland. It follows that there were 5800 medical examinations; and seeing that the principal medical advisers at the head offices are remunerated, not by fees for the several examinations they may personally conduct, but by salaries varying from L.100 to L.300 per annum, there could not have been less than L.6000 expended during last year by the Scotch assurance companies for medical opinion in Scotland alone. Although, from the want of data, it is impossible to estimate so confidently the examinations made in Scotland for the English companies, they probably amounted to a fifth of those for the Scotch Companies, or 1500, at an expenditure of L.1000.

We have thus the result of 9000, as the total number of medical examinations made in Scotland during last year for both Scotch and English companies, at an expenditure to the companies of L.7000—an interesting and suggestive fact in social statistics, indicating the advancement of the country in provident habits, and showing the extent of the duties in connection with Life Assurance now devolved on medical practitioners—duties which scarcely existed twenty years ago, but which have how become of consequence to the profession themselves, and not less to Assurance Companies and their constituents, as bearing on the collection and re-distribution, on safe principles, of several millions annually of insurance funds.

THE CENSUS OF CANADA.

The late census discloses some singular facts. In the United States it has been found—and it is similar in Canada—that under five years of age there are more males, by nearly 50,000, than females ; then, between the ages of fifteen and twenty, the females outnumber the males to about the same extent. The tide turns again between the ages of thirty and forty, then the males outnumbered the females, in the year 1850, upwards of 160,000 ; and last scene of all, at seventy years of age the feminine gender is again in the ascendant. In Canada this remarkable ebbing and flowing of the sexual tide has been found to vary in a similar ratio, differing only in the figures, in proportion to the respective populations of the two countries.

Whether the same result is found in the old countries of Europe the report does not say; but it is not probable. Different circumstances there produce different results upon the population, as the following facts show ;—Of 42,000 families in Britain, each with a husband and wife at its head, it is found that 12,000 have no children at home ; 8000 have but one ; 7000 two ; 5000 three ; 4000 four ; and so on, heads of families decreasing in numbers as the number of children increases. In opposition to this Canada shows a remarkable difference. Out of 42,000 families there, only about 4000 were without children with them, and so on in proportion between the numbers of families taken in the respective countries, large families being more plentiful in Canada than in Britain. The report accounts for this difference in several ways. One is, that emigrants to the country generally come out at a vigorous productive age ; this reason seems valid. Another which he offers does not seem quite so much so ; that is, early marriages in Canada. It is scarcely possible that these can prevail to a greater degree in Canada than in Great Britain. It is a well known fact that among the working classes of the three kingdoms early marriages prevail to a ruinous and deplorable extent.

Another singular fact which the report brings before us is the discrepancy in the number of births and deaths between the two provinces. In 1851, the births of Upper Canada were, leaving out the odd numbers, 32,000 ; while the deaths amounted to 7000, being something less than a fourth part of the births. In Lower Canada, during the same year, the births were in round numbers, 36,000 ; the deaths 11,000, nearly a third part of the number born, thus showing a heavier mortality in the lower province than in the upper. The report states that epidemics and children's complaints, such as hooping-cough, croup, etc., are much more fatal in Lower than in Upper Canada.

Not the least interesting item in the census is the return of the Indian population, these ancient lords of the forest. The report states their whole number in the two provinces to be 8728 ; but it says this is probably little over half their number, as it is known that many of them live beyond the census limits. In support of this it is stated that Smith, in his work on Canada, enumerated them at 14,000 in 1842.

The most melancholy part of the report is that relating to the deaf, dumb, blind, and lunatic. Here, again, the lower province appears to disadvantage. The number of deaf and dumb in Lower Canada is 865 ; in the upper provinces it is little more than the half, 478. In Lower Canada there is one to every 1029 of the whole population ; in Upper Canada there is one to every 1991 of the population; while the census of the United States shows a proportion even still less, they having only one to every 2395 of the whole population.

Of lunatics Lower Canada has 5733, one to every 543 of the population; Upper Canada has 1069, one to every 380 of the whole inhabitants.

The number of inhabitants who had either reached or passed their hundredth year in Canada East, at the taking of the census, was thirty-eight, twenty females and eighteen males; only four out of the whole number were married, but twenty-three were widows and widowers; only eleven out of the whole having lived out their century in single blessedness, and of these eleven only three were males.

The report comprises some very interesting returns going to show the remarkable healthiness of the Canadas. There were over 100 years of age in Upper Canada, fourteen males and nineteen females. Two males were respectively 115 and 120. Two females were each 106 and 114. Nor is the eastern province in any way behind in these extraordinary instances of longevity, the returns showing that there were twenty-two males over 100 years of age, and eighteen females.—*Edin. News, Aug.* 11*th.*

CHOLERA IN LOMBARDY.

The cholera has extended itself over the whole of Italy, and everywhere with destructive ravages. Upper and Middle Italy have chiefly suffered. In Lombardy, from the commencement of the epidemic up to the 19th of August, as to the provinces, and the 25th of August as to the city of Milan, the number affected has been 33,114; of whom 6832 are reported as cured, 15,366 as dead, and 10,916 as under treatment. In Brescia alone, the seizures have been 15,796; of which number the cures are 3596, the deaths 6949, and those remaining under treatment 5251. In the city of Milan the cases have been 295; of whom 40 cured, 182 dead, and 73 under treatment. A writer in the *Annali Universali di Medicina,* attributes the comparative paucity of cases at Milan to the excellent constitution, and admirable preventive measures of the Sanitary Commission of that city. It appears that this body consists of five members, of whom four are physicians. Thus science, directed by experience, guided their deliberations; which were at once productive of appliances, the essential fitness and promptitude of which were neither broken nor retarded by the delays of bureaucracy. On the contrary, the execution followed instantly on the necessity; and the execution was rigorous, vigilant, and complete, because it was designed to be efficacious. On the other hand, in the provinces it was not the medical men who directed what was requisite for the public health. There, the advice of the physicians, when not utterly rejected, was subjected to non-medical supervision, where the spirit of the prophylactic measures was not adequately comprehended; or, if understood, was ignorantly and inefficiently applied. The results of this are illustrated by several special instances, where medical directions were superseded or thwarted by the magistracy, to the prejudice of the zeal of the practitioners, and the detriment of the public safety.—*Omodei e Calderini, Annali Universali di Medicina,* Milano, August 1855.

STATISTICS—BIRTHS, DEATHS, MARRIAGES, SCOTLAND.

The first monthly return of the Births, Deaths, and Marriages registered in the eight principal towns of Scotland, being that for the month of August 1855, has just been issued. In introducing the tables, the Registrar-General remarks:—"When sending out the first set of tables under the Act for providing a better system of Registration of Births, Deaths, and Marriages in Scotland, the Registrar-General thinks it right to advert to one or two circumstances connected with them, which seem to require explanation.

"In the first place, while the quarterly returns for the country generally will embrace the whole period which has elapsed since the Act came into operation, those for the eight most populous towns have reference to the month of August solely.[1] For reasons which it is unnecessary to mention, it was found impracticable to go farther back; but the returns will, in future, be published regularly at monthly intervals, and, if possible, arrangements will be made for procuring and publishing similar returns for the previous months of the current year.

"Secondly, the Registrar-General is desirous of calling attention to a report which has been addressed to him by Dr Stark, the Superintendent of Medical Statistics, which he has thought it right to append to the tables now issued. The facts deduced by Dr Stark, from the returns sent in, speak for themselves; they are in some respects of a painful character, and seem to indicate a deficiency of medical aid, during illness, among the poorer classes of some of our most populous towns. The remarks made by Dr Stark, however, show the necessity of exercising great caution in coming to a conclusion as to the extent of this deficiency. It must not be assumed that in all cases where the returns bear 'No medical attendant,' there was absolutely no relief or care bestowed during illness. Relief may have been obtained from dispensaries and other sources; or there may have been medical aid and attendance, but, from the apathy of the parties themselves, not of such a character as to enable the practitioner who has seen the case to send in a certificate in terms of the Act. Future returns will probably throw more light upon this subject.

The letter of Dr Stark, above referred to, and which we subjoin, is in fact an able abstract of the Return; and, as such, renders it unnecessary for us to give any of the tabular portion of the return beyond the following general table:—

TOWNS.	POPULATION.		BIRTHS.			MARRIAGES.	DEATHS.		
	1841.	1851.	Males.	Females.	Total.		Males.	Females.	Total.
Glasgow,	267,463	329,097	606	649	1,255	200	437	437	874
Edinburgh,	139,187	161,648	217	214	431	121	135	152	287
Dundee,	65,392	80,027	116	113	229	47	66	87	153
Aberdeen,	63,778	73,227	108	93	201	46	60	51	111
Paisley,	47,695	48,071	69	69	138	51	57	52	109
Greenock,	36,936	37,436	95	78	173	29	60	56	116
Leith,	27,154	32,219	54	54	108	21	24	19	43
Perth,	22,248	25,441	35	22	57	15	19	28	47

Note.—The population of each town, as here given, is that of the Registration Districts, which in most cases differ somewhat from the Parliamentary Burghs, in consequence of their including small fragments of the extra-burghal population.

DR STARK'S REPORT TO REGISTRAR-GENERAL.

Sir,—During the month of August 1855, there were registered in the eight principal towns in Scotland, 2592 births, of which number 1300 were males, and 1292 females; 1740 deaths, of which 858 were males, and 882 females; and 530 marriages. The births have thus been one-third more numerous than the deaths, exceeding them by 852.

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[1] The returns for the two first quarters of the year will be published very shortly, and that for the third quarter in the course of a few weeks.

These towns, embracing a population of 787,166 persons in 1851, or a little more than a third of the total population of Scotland, will, by the returns of the births, deaths, and marriages, serve to convey not only a tolerable idea of the movements of the population, but also by their morality tables, give valuable indications relative to the prevalent diseases, as well as to the influences exerted by peculiarities of site, exposure, the habits and occupations of the people, and the general sanitary arrangements of the towns.

As in all manufacturing populations it is found that the infant mortality is excessive, it seemed desirable to direct attention to this point, and accordingly the deaths under five years of age have been given in a separate column. In the eight most populous towns of Scotland, children have been cut off in the following proportions:—In Paisley, at the rate of 34 out of the 100 deaths at all ages; in Edinburgh, 38 per cent.; Aberdeen, 39; Leith and Perth, 51; Glasgow, 55; and Greenock, at the enormous proportion of 64 per cent. It may be mentioned that, in the normal mortality of a town population, about 38 per cent. of the deaths are children under 5 years of age.

Of the various classes of disease, the zymotic class (epidemic and contagious diseases) usually cuts off the greatest number of victims. In healthy seasons about 22 per cent. of the total mortality is caused by this class of diseases in towns; but during the autumn this proportion is often exceeded from the prevalence of autumnal diarrhœa and bowel complaints. In Edinburgh the zymotic diseases constituted 16 per cent. of the total mortality; in Leith, 23 per cent.; in Aberdeen, 24; in Perth, 27; in Glasgow, 33; in Paisley, 33; and in Dundee and Greenock, 87 per cent. of the total mortality.

It is not creditable to our sanitary arrangements that small-pox should be allowed to continue its ravages unchecked by vaccination, as it appears to be in Dundee and Greenock. In the latter town, small-pox constituted 5.1 per cent. of the total mortality, and in Dundee no less than 7.2 per cent. The average mortality from this loathsome disease has been for some years past 2.4 per cent. of the total deaths in Dundee, and 3.4 per cent. in Greenock, or nearly double that of the English towns, so that the above-mentioned mortality is truly excessive.

Of the epidemic diseases of childhood, measles has been especially prevalent in Glasgow, Greenock, and Paisley—all towns in the west of Scotland; while Aberdeen, Dundee, Perth, and Leith—towns on the east coast—have scarcely suffered at all from that disease.

Scarlatina, on the other hand, has been almost the only epidemic among children at Aberdeen; it has also caused a few deaths in Edinburgh, Paisley, Greenock, Glasgow, and Leith.

Hooping-cough has been the chief epidemic among children at Dundee, causing 9.2 per cent. of the total mortality. It has also been somewhat prevalent in Glasgow, Edinburgh, Paisley, and Leith.

Diarrhœa, dysentery, and autumnal cholera, usually begin to show themselves during the month of August; dysentery chiefly prevailing when the heat is great, the variations of temperature sudden, and when these atmospheric variations are attended with cold cutting winds. While, therefore, all the towns suffered a considerable mortality from the usual autumnal diarrhœa, Paisley, Greenock, and Glasgow, alone exhibited a high mortality from dysentery. Glasgow, Paisley, and Dundee, are the only towns which had deaths registered as caused by cholera. In a few only of these instances were the deaths certified as being produced by the Asiatic form of the disease. As this formidable epidemic is now so prevalent on the Continent of Europe, and has hitherto made its appearance in Scotland about the beginning of October, it would be wise in the local authorities to exert themselves in time, and put in practice those precautionary measures which experience has proved to be of so much avail in warding off the attack, or in mitigating the severity of this most fatal of diseases.

Typhus fever, in its varied forms of gastric, typhoid fever, etc., has been rather prevalent in Aberdeen; the other towns being unusually exempt from it.

With one exception, the other diseases causing death call for no special remark. It will be observed that in Glasgow 50 deaths were registered as produced by debility at birth; 12 in Edinburgh; 11 in Dundee; and 5 in Greenock. This gives the proportion of 4 deaths from debility out of the 100 deaths from all causes in Edinburgh and in Greenock: about 6 per cent. in Glasgow, and 7 per cent. in Dundee. In the normal mortality of a town population, the proportion from this cause is about 2½ per cent only. It will be interesting to inquire into the causes of the large proportional mortality from this cause in Glasgow and Dundee, should it be found to continue.

The mortality Returns from Glasgow, Dundee, Greenock, and Paisley disclose a most painful fact—viz., that from a fourth to above a third of the population of these towns is unprovided with medical aid during their last illness and death. Thus in Paisley, 22 per cent. of the persons whose deaths were registered during August, had "no medical attendant." The proportion was 25 per cent. in Glasgow, 41 per cent. in Dundee, and 41 per cent. in Greenock. This is a truly lamentable state of matters. Even in overcrowded London, excluding the cases coming under the notice of the coroner, only about 4 per cent. have not medical aid during their last illness and death, so that nearly all persons who die there fall under the observation of a medical or legal functionary. Every one can see the importance of this, both in a sanitary and medico-legal point of view. If infectious or epidemic disease is allowed to spread unchecked among the poor, it will soon extend its ravages to the wealthier classes; and it cannot be doubted that the presence of a medical practitioner must have a powerful effect in repressing unlawful tampering with human life. It may be mentioned that, in Edinburgh, 7 per cent. of the deaths had no medical attendant, but the proportion was only 2 per cent. in Aberdeen and Perth. The circumstance of there being no medical attendant present during the last illness and death in so large a proportion as 7 per cent. in Edinburgh, where medical charitable institutions are so numerous, and where no one who chooses to apply need want medical aid, induces the belief that the still higher proportions in Glasgow, Dundee, Paisley, and Greenock, may, in some degree, be owing to the apathy of the lower classes themselves, and not to the provision for medical attendance on the poor being inadequate to the requirements of the population.

The appearance of this Report has been delayed longer than was expected, from the circumstance of one or two Registrars failing to send in their returns within the specified period. The Act allows the medical practitioner fourteen days after the death to send in his certificate of the cause of death, and the Registrars do not transmit their returns to the General Registry Office till this period of time expires, if any of the medical certificates have been withheld. It would, therefore, be a great obligation, and would facilitate the early appearance of these reports, were the medical certificates sent to the Registrars as early as possible after the death.—I have the honour to be, etc.

James Stark, M.D.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

Session XXXV. First Meeting.

Wednesday, November 21st, 1855.—Wm. Seller, M.D., President, in the Chair

There was a large attendance of members. Three papers were read. 1st, "On the Influence of the Nervous Element in Inflammation." By Dr Alexander Wood. 2d, "On Manual Strangulation." By Dr Keiller. 3d, "A Case of Sudden Death." By Dr Roberts. The last two papers appear in our present number, and the first will be published in our next.

Part Fourth.

MEDICAL NEWS.

THE MONTH.

As Parliament will soon be re-assembling, it is of importance to the medical profession, and to the community generally, that the Lord Advocate's Bill for the "Removal of Nuisances and Police of Towns," should be carefully considered in all its bearings, with a view to the best means of conserving public health. The nation is under a deep debt of gratitude to the Lord Advocate for having prepared a measure of this description; and, if we venture to suggest some amendments, it is in no captious spirit, but with a simple desire that the Act shall be rendered as effective as possible. With some objections that have been preferred, we have no sympathy whatever. The proposal to invest the Prison Board with a superintending power, we regard as a positive merit, and not a defect, as has been asserted by some. The local eye sees not, its nose smells not, nor has it any one sense vigilant or acute—custom and familiarity blunts its every faculty. We can point to numerous instances where nuisances, rank and pestilent, would have flourished in verdant exuberance had not the fear of the Board of Supervision overawed the Parochial Boards, and compelled them, at the point of the bayonet, to call in the surveyor and scavenger. It is too much the fashion to laud the blessings of spontaneous self-government, which, within certain limits is excellent and proper; but it is not to be trusted with such an important matter as public hygiene. For proof of this, we need not go farther than the constituency of the Lord Advocate himself. It was with the very utmost difficulty that Portobello was induced to avail itself of the Police Act. Portobello, with its 3467 inhabitants, and its 307 electors, Portobello, basking in the light and intelligence of the Scotch metropolis, Portobello, with its wealth and decorum, submitted with the utmost obstinacy to be washed and cleansed. And Newhaven, what shall we say of it? Is it within the bounds of human probability that the denizens of that ancient village will, in the remotest way, take advantage of any merely permissive act for self-purification? We trow not. Sanitary arrangements must be forced on the community; and, however little this may be creditable to our enlightenment, there can be no question as to the stern reality of the case.

In all likelihood we are on the eve of another outbreak of cholera; and with the theory, supported on such strong grounds, by Professor Alison, that the disease is propagated by the dejections of the victims, it is necessary that legislation should be vigorously exerted for a proper supply and due regulation of privies. That this is imperatively necessary, we shall establish by referring to the state of Newhaven and its neighbourhood at this present hour. Let our readers take a pedestrian excursion along the shore to the above-named locality, and let them note the nuisances that there await them. Proceeding from Leith to Newhaven, stone bulwarks, less or more line the coast, and on them the filth of the inhabitants is especially deposited. Too high to be washed away by the sea, and too low for the scavenger's shovel, if such an implement is known in the vicinity, there the refuse remains, till its odour is exhaled by the air, and some part of its substance washed away by the rain. Throughout the whole way dunghills are to be seen, in number unrestricted, and in locality, shape, and copiousness, equally without limit or control. Coming to the village, a huge part of the road is covered with boats, and the whole of the space so occupied has been used as one vast privy. Entering the village (we refer to two Sunday mornings in November) literally, and without exaggeration, every house had its mound of oyster shells, fish remains, excrement, etc., which had been deposited there since the previous Saturday—had, and would lie there all Sunday, and continue to lie there, for how long we know not. Now, with great deference, we submit that we do not exactly see how the Lord Advocate's Bill will remove nuisances like these. We desiderate a clause prohibiting the deposit of filth on bulwarks or stairs leading to the sea, and, as to dunghills, they should be put down altogether in the neighbourhood of towns, where scavengering is already in operation, and where, by overleaping the wretched local boundaries which impede improvements of every kind, a whole district, instead of mere burghal territories, could be cleansed and kept healthy. For cleaning purposes, why should not the whole parliamentary boundary of a place be taken in? If the matter is done by contract, surely the contractor would not complain if the area of his products were extended—and if the manure is sold for the benefit of the burgh funds, it would be no ground of offence if the collection of dung was augmented. If, however, law cannot see its way to consolidate separate districts for the common purposes of purification, then let road-trustees be made amenable for all the thoroughfares within their jurisdiction, not merely for the public roads which they are bound to keep in repair, but for every bye-path and lane that is topographically within their circle of office. The Bill apparently proceeds on the principle that accumulations of filth, formal dunghills, open drains, are to be put down, if "foul, offensive, or injurious to health." Now, we have had some experience in making complaints, under former acts, as to the removal of nuisances, but the difficulty is to satisfy the local authorities that any nuisance whatever is "injurious to health;" and even where the case is admitted, and clearance ordered, the deposit re-appears again so often, that private patriotism becomes wearied of the contest, and resigns it in despair. The law must take higher ground—it must enact clearly and distinctly that no deposit of filth shall lie at any door for more than a given number of hours, or be deposited at all at other than certain hours—that permanent dunghills shall cease to be within half a mile of the scavenger's march, or wherein there is a given population—and that open ditches used for the conveyance of filthy matter, shall at once and for ever be closed. Passing to another part of the Bill, we find most admirable arrangements for cleaning lodging houses—but why not extend these excellent provisions to all houses? It seems strange, that while the "keeper of a common lodging-house shall thoroughly cleanse all the rooms, passages, stairs, floors, windows, doors, walls, ceilings, cesspools, draining, and privies thereof," no such injunction should be extended to ordinary dwellings. It is well known that many common stairs in towns having no special Police Act, and not occupied by very poor persons, are noted for their filthy state, and a sufficient bar to regeneration will be the simple statement that "no lodgers are kept." We have to regret too that harbours, a most fertile source of nuisance, are not dealt with at all. In sea-ports, such as Leith, drains are carried into harbours, and when the tide recedes, the stench emitted is all but intolerable. In a recent number of this *Journal*, where an epidemic of measles in Leith is dealt with, the excessive mortality is expressly ascribed to this and other anti-sanitary influences. We are, of course, perfectly aware that such a subject as harbours cannot be introduced by a side-wind into a Nuisances Bill, and that it is not till an advanced state of public opinion shall warrant the legislative declaration that nothing corporate or commercial shall be suffered to interfere with public health, that we shall be able to wage effectual war with pestilence and other forms of preventible death. To that point we are not yet come, but we are approaching to it, and we hail this bill as the harbinger of a better day that is soon to dawn. Meanwhile, we earnestly bespeak the favourable consideration of the Lord Advocate to the points which we have ventured to bring under his lordship's notice. We have not referred to nuisances within the bounds of the Leith District of Burghs from any wish to insinuate that they are worse than other places in Scotland, but because being near, at hand, and necessarily known to the Lord Advocate, he can readily satisfy himself as to the general working of his measure, by considering how it will affect clamant evils at our own doors.

A controversy has arisen about the extension of the Scotch Universities; and the meagreness of their literary teaching has been strongly contrasted with the full equipment of the German seats of learning. It has always appeared to us that the strict surveillance of the German press, and the restraints put on political expression and action, has led to a proportionate development of literary and scientific study; and that it is fully as much from necessity, as from choice, that the Germans possess such high abstract scholarship. On the other hand, in this country, our young men we may cast too soon on the world, and the long time that elapses before success can be achieved in what are called the learned professions, looks very much as if this were the case. The question, except in so far as medicine is concerned, does not directly come within our province; and there is a strong feeling that the medical faculties of our universities are at least full and complete. Still, while generally getting credit for this out of doors, it behoves us to discern, as one of the signs of the times, a desire for extensions even in medical teaching, which is not to be indiscriminately condemned. We have already hinted at the need for a chair of public hygiene, so common on the Continent, and there are probably other chairs which the demands of public boards may in time cause to be instituted. It is not, however, to be expected that our universities should respond to every current want, until it is ascertained that such demand is to be permanent, and of extent, as well as permanence. In London, if the schools do not give the requisite teaching, it cannot be had out of them; but in Scotland, the facilities for extra-teaching are such, that the minutest requirement of every public board can be attended to by individual effort, apart altogether from collegiate arrangement. Thus the East India Company requires that their candidates should attend three months practical instruction in a public lunatic asylum, three months in an ophthalmic ward, that they shall have conducted at least six labours, and that they have acquired a practical knowledge of cupping. It would be too much to expect that four new chairs should spring up, like mushrooms, to meet these exigencies; it is enough that in the Scotch schools of medicine there is a power of self-adjustment in the systems of extra-teaching, which effectually supplements the universities in every passing emergency, and which, without imposing any necessity for immediate action on the part of colleges whose mode of government does not admit of such, promptly adopts itself to temporary calls, so that the student is never put to inconvenience for instruction of any kind.

The Managers of the Royal Infirmary of Edinburgh again appeal to the public for extraordinary aid. The last special effort produced L.7467, but as the debt at the end of 1854 was L.7965, it is clear, that if the old balance was liquidated, there was nothing left in hand for current expenses. It is therefore with no surprise that we learn, that at present the Institution owes its banker L.4978. The question then is, how is this debt to be met at present, and how is it to be avoided for the future. The ordinary method of collection will doubtless meet existing liabilities, but as, very likely, nothing extra will be raised, we shall next year have a similar appeal, and so on for perhaps many years. It would be an easy matter to restrict the number of beds, so as to square with the income, but this process would reduce the establishment from a national to a local hospital, and great damage would thereby be inflicted on the medical school. The absurd system of building and maintaining palaces for juvenile education, has fallen into so much, and so deserved disrepute, that it is to be hoped that some of the money hitherto perverted in that manner will find its way to the coffers of the Infirmary. But while the grass grows, the hungry steed pines and dies. Are no immediate resources then available beyond the offerings of the over-taxed inhabitants of Edinburgh for the extrication of its Infirmary? We think there are. Mr George Chalmers, plumber in Edinburgh, died on 10th March 1836, and bequeathed nearly L.30,000 for the erection and endowment of an "Hospital for the Sick and Hurt." The management of the charity was vested in the Dean and Faculty of Advocates, who have purchased Lauriston House, for the purpose, it is understood, of carrying the intention of the founder into effect as soon as possible. It may have been in conformity with Mr Chalmers' will that this purchase has been made, but a more sensible and useful application of the funds would have been to endow the existing infirmary; and, sure we are, that if any appeal had been made to the inhabitants of Edinburgh, they would cheerfully have concurred in, and borne the expense of any act necessary to authorise such a proper diversion of the charity. Is it yet too late to do so? Is the matter so foreclosed that memorials from the Medical Faculty of the University, from the Colleges of Physicians and Surgeons, and from the public generally, cannot reopen it? We desiderate information on this point. If efforts have been made to accomplish the objects hinted at, and have failed, it is but right that the community should know what has been done or left undone, who has obstructed, and what reasons have been assigned for such obstruction. Charitable trusts are pre-eminently objects on which the full light and influence of public opinion should be turned. If there really are insuperable objections, surely something could be done to lighten the pressure on the Infirmary as a self-supporting institution, undertaking something more than local wants render imperative.

LECTURE ON THE LAMINA SPIRALIS OF THE COCHLEA.

By John Goodsir, F.R.SS.L., and E., Professor of Anatomy.

(*Delivered in the University of Edinburgh. July* 1855.)

After briefly alluding to the general conformation and relations of the Cochlea, the lecturer proceeded to describe the remarkable structures which have lately been discovered in the Lamina Spiralis.

The Lamina Spiralis, instead of being, as hitherto supposed, a single layer, osseous in the inner, and membranous in the outer portion of its extent, is a double structure, with numerous complex arrangements in its interior.

The osseous and membranous portions of the Lamina Spiralis as hitherto understood, may be considered as the basis of the entire complex structure as it is now ascertained.

The osseous portion of the Lamina contains the cochlear nerves in closely arranged canals, which, at its outer margin, coalesce in a chink or fissure, which contains the ganglion recently discovered by Corti, and affords exit to the nervous filaments.

The membranous portion of the Lamina consists, as discovered by Todd and Bowman, of a membrane which, except at its outer and inner margins, is closely streaked in the direction of the radius of the Cochlea, and hence denominated Zona Pectinata. The outer margin of the membrane is attached by means of a fibro-nucleated texture to the accessory spiral lamina of Huschke, and to the neighbouring groove. This fibro-nucleated structure is the cochlear muscle of Todd and Bowman—the spiral cochlear ligament of Kölliker. The inner margin of the membrane is attached to that lip of the fissure of the osseous lamina which is next the apex of the Cochlea, but so as to leave numerous orifices or more or less oblique canals, through which, as Kölliker has ascertained, the extremities of the cochlear nerve filaments pass to the vestibular surface of the membrane. The cochlear nerves, therefore, instead of being distributed, as has hitherto been supposed, on the tympanic aspect of the Lamina Spiralis, pass through it to its vestibular aspect; its entire tympanic surface, and the nerves in their transit across that surface, from the fissure in the osseous to the orifices in the membranous portion, being covered by the fibro-serous lining membrane of the osseous labarynth. It thus appears that all the complex structures in connection with the Lamina Spiralis, usually so called, of the cochlea, are situated on its vestibular aspect.

These structures are, 1. The Habenula sulcata, situated chiefly on the osseous lamina, and discovered by Todd and Bowman; 2. The Habenula denticulata, situated on the membranous lamina, discovered by Corti, and latterly ascertained by Kölliker to be connected with the cochlear nerves; 3. The Membrane of Corti, covered on its vestibular surface by the serous lining membrane of the osseous labarynth, first partially recognised by Corti, but latterly more fully described by Claudius; 4. Large vesicular cells which occupy the space between the membrane of Corti, and the Lamina Spiralis, usually so called, first recognised by Corti, but more precisely determined by Claudius.

The Habenula sulcata is a structure of cartilaginous aspect, which, rapidly increasing in thickness, as it advances to the outer margin of the osseous lamina, inclines over and beyond that margin so as to form the sulcus spiralis of Huschke. It consists of columns, which at its thin inner edge are set perpendicular to the surface of the subjacent bones, and therefore expose their free extremities on its vestibular aspect. Towards its thick or outer edge the columns become more and more inclined, so as to expose more and more of their sides, and at the edge itself they form a series of elongated, slightly clavate and flattened, clear glistening teeth, which project over the groove of Huschke. Some of the columns divide, others unite together, as they pass outwards to form these teeth; which are termed "teeth of the first series." In the grooves between the columns are numerous nuclei, which resist acetic acid, while the former swell up, and become somewhat striated under its action.

The Habenula denticulata consists of a series of apparently jointed rods, laid on the surface of the membranous portion of the so-called Lamina Spiralis; each rod in the series lying in the direction of the radius of the cochlea; the first or inner segments of these rods form a series of compressed laminæ, attached across the bottom of Huschke's spiral groove, with narrow chinks between them, which are, in fact, the orifices through which the cochlear nerve filaments pass, as already stated. These central segments are the "Dents apparents of Corti." The second segment, or portion of each rod, is also compressed, and lies flat on the membranous Spiral Lamina, and is loose and moveable, except at its inner end, where it presents an enlargement like a nucleus, which was supposed by Corti to be the joint by means of which the rod is attached to, and moves on the membrane; but which Kölliker has discovered to be the point at which one or more of the ultimate filaments of the cochlear nerves become connected with the rod, after they have passed through the orifices already mentioned. The series formed by these second segments of the rods are the so-called "teeth of the second order." The terminal segment is connected with the second by means of two short quadrilateral segments, the "Coins articulaires" of Corti. The terminal segment is elongated and compressed. To its upper surface three pyriform bodies, each of which contains a nucleus, are attached by short peduncles, so as to be laid over one another, from within outwards. Corti and Kölliker describe the outer extremity of this segment as somewhat expanded and forked, and also as free or loose. But Claudius has ascertained that the expanded extremity is attached to the lamina pectinata, so that the rod cannot move to and from the membrane, as Corti has supposed.

It must here be observed, that the first or inner segments of the rods—the "Dents apparents" are attached throughout, and from their position and relations belong rather to the structure of the Habenula sulcata, than to that of the Habenula denticulata. The latter consists, then, essentially of the second and terminal segment described above, connected together by the short "articular" portions. The cochlear rod, properly so called, consists therefore of two principal segments, the inner segment being connected with one or more ultimate nerve filaments, and the outer fastened at its external end to the membrane on which it lies.

Corti has described a thin membrane covered by the epithelium of the labarynth, and extending from the prominent surface of the Habenula sulcata somewhat beyond the Habenula denticulata. The space between this membrane and the "Dents apparents," and also the spiral groove of Huschke, are occupied, according to him, by large transparent nucleated vesicles. Similar vesicles, conceived to be epithelial by their discoverer, occupy the space between the membranous Lamina Spiralis and that portion of Corti's membrane which extends beyond the Habenula denticulata. The rods of the Cochlea, therefore, according to Corti, move like a series of hammer or pianoforte keys, in a space included between the membrane discovered by him, and the Lamina Spiralis, usually so called. Claudius, however, has shown, that Corti's membrane extends out to the external wall of the cochlea; and that the entire space between it and the Lamina Spiralis, usually so called, is occupied by vesicular structure.

The lecturer now proceeded to state the results of the observations which he had made, for the purpose of verifying the descriptions of Corti, Kölliker, and Claudius. The membrane of Corti extends, as Claudius has stated, to the outer wall of the Cochlea, and the large cells between it and the Lamina Spiralis have extremely thin walls, and transparent contents, so that they resemble, when pressed together, an areolor net-work. Portions of the rods were also occasionally seen curled up, and as observed by Claudius, attached by their expanded extremities, in series, to the membrane on which they lie. The detection by Kölliker of the connection of the nerve filaments with the rods is, after the discoveries of Corti, the most important recent addition to our knowledge of the structure of the Cochlea. Even in the ordinary view of the structure from the vestibular aspect, the nerve filaments may, without much difficulty, be observed to disappear at or in the central extremities of the rods. Their inner extremities do not correspond, as Kölliker has correctly observed, to the outer ends of the "Dents apparents," but to the intervals between the latter. Kōlliker holds, on chemical as well as anatomical grounds, that the rods of Corti are true terminations of the cochlear nerves—peculiar forms of the ultimate nerve fibre. He believes Corti's opinion to be erroneous, that they are developments from the membrane on which they lie, and that they constitute a physical apparatus. Notwithstanding Kölliker's opinion, it may be safely asserted, that the rods of Corti present a configuration and aspect which distinguish them in the most marked manner from any form of the nerve-filament. The peculiar flattened articulated form, the variable breadth, and, as pointed out by Claudius, the alternate arrangement of the proximal and distal segments of neighbouring rods; and, lastly, the elasticity, slight, though marked, which they possess, indicate that they are not true nerve structures. Without stating the nature of the function he supposes them to perform, Corti believes that the rods move like a series of hammers. Harless conceives that they act as dampers by pressing on the membrane during vibration. Kölliker, again, believes that from the almost mathematical regularity with which they are arranged along the vestibular surface of the Lamina Spiralis, these peculiar terminations of the cochlear nerves are the structures which distinguish the pitch, timbre, and strength of sounds, through the medium of the water of the labarynth and the fenestra ovalis.

The lecture concluded with some remarks on the probable functions of the different parts of the labarynth, and more particularly of the rods of Corti. From comparative anatomy it would appear that the vestibule is that part of the organ by means of which any sound, or series, or combination of sounds is heard merely as *noise*. The simplest form of ear, which consists of a vestibule only, probably enables the sensorium merely to become cognisant of sound, irrespective of the pitch, or harmony of its constituent tones.

In regard to the semi-circular canals, it appears probable from their intimate connection with the vestibule, that they, like it, have to do with sound merely as *noise*, and that their function, therefore, is of secondary importance in the higher forms of the organ.

Dr Thomas Young, with his usual sagacity, considered the cochlea as a "Micrometer of sound." Kōlliker, as already stated, has put forward a similar idea, based on his knowledge of the structures described in this lecture. His conception, however, appears to be so far unsatisfactory, inasmuch as he considers the rods of Corti to be merely the extremities of the cochlear nerves; and it wants that completeness which it would have, had he been able to admit those rods to be a series of acoustic arrangements, as they are believed to be by their discoverer.

The hypothesis presents a more satisfactory form if we assume that each of the rods of Corti, or that groups of these rods are so organised and arranged as to act or vibrate as acoustic apparatuses appended to the extremities of the cochlear nerves. Each rod, or group of rods, may be so constituted as alone, among all the others, to act or vibrate, when the note or harmonic chord, for which that single rod, or that group of rods, had been provided, passes through the cochlea in the form of sonant vibrations of a correspondent physical value. If this be the case, we can understand how, by the instrumentality of a Cochlea, the physical value of each tone, or harmonic combination of tones, may be detected by the ear, and impressions of correspondent value transmitted along the nerve-filaments to the seat of sonant sensation in the brain. It must be borne in mind, however, that the æsthetic perception of the sensations produced by the instrumentality of the cochlea, its nerves, and the sentient centre, is a psychical function, and a result of the pre-established harmony between the mental and corporeal elements of the animal constitution, on the one hand, and external nature, on the other.

INAUGURAL LECTURE

By Professor George Wilson, M.D., F.R.S.E.,

(*Delivered in the University, of Edinburgh on November* 7, 1855.)

The word "Technology" appears to have been first explicitly employed in the sense in which it concerns me, in 1772, by Beckmann, the famous author of the *History of Inventions*, who was for many years "Professor of Economy in the University of Göttingen."[1] Availing himself of the liberty conceded to professors in German Universities, to lecture on any subject within their *Faculty*, he chose the Industrial Arts as the topic of a series of prelections, and entitled the science of these arts—"Technology." The word had long been in use among the Germans in various senses, but since Beckmann's time has been pretty generally accepted as signifying what he denoted by it; and a certain fixity has been given to this meaning by the establishment of Chairs of Technology in certain of the German Universities, among others in that of Giessen, where Dr Knapp (since transferred to the corresponding Chair in Munich) acquired great celebrity as professor of this branch of knowledge. Through him the word Technology has been introduced into our language, his well known work, *Chemical Technology, or Chemistry applied to the Arts and Manufactures*, having been translated into English in 1848, by Dr Richardson, an able practical chemist of Newcastle, and Dr Ronalds, the accomplished Professor of Chemistry, Queen's College, Galway. This work has just reached a second English edition, so that the word Technology may be supposed to have acquired a certain naturalization amongst us, and such seems to be the opinion of the editors of Knapp's work, who give no definition of it in the new issue, though they did (in translation from Knapp) in their first edition. In this, "Technology" was stated to comprise, "in its literal signification, the systematic definition λογος (logos) of the rational principles upon which all processes employed in the arts τεχναι (technai) are based." This definition is not very gracefully worded, but is sufficiently explicit. The word Technology literally signifies the Science of the Arts or a Discourse or Dissertation on these. This latter meaning is the one given to the word in Dr Hyde Clark's recent and admirable English Dictionary, the only one in which I have found it.[2] He defines Technology as "a Treatise on the Arts," a description quite just so far as it goes, but including only one-half of the full signification of the word, for it as much denotes, according to the meaning of its Greek roots, and the custom of our language, the science of the arts as a dissertation upon them.

In this respect, it agrees with all the similar composite words of Greek origin, such as "Theology," which is, with equal propriety, employed to denote the science of the attributes, the ways and works of God, and to denote a dissertation upon these: "Geology," which sometimes signifies the knowledge or existing learning regarding the Physical Earth, and sometimes a discourse upon it: "Conchology," which at one time stands for the doctrine of or about shells, and at another for a treatise upon them.

Technology, then, in the sense in which I have to deal with it, implies the Science, or Doctrine, or Philosophy, or Theory of the Arts. Its object is not Art itself, *i. e.*, the *practice* of Art, but the principles which guide or underlie Art, and by conscious or unconscious obedience to which the artist secures his ends.

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It is with every-day life, and every-day cares, that Technology, in one aspect, has to do; with man, not as "a little lower than the angels," but "as crushed before the moth," and weaker than the weakest of the beasts that perish; with man as a hungry, thirsty, restless, quarrelsome, naked animal. But it is also the province of Technology to show, that man, because he is this, and just because he is this, is raised by the industrial conquests which he is compelled to achieve, to a place of power and dignity, separating him by an absolutely immeasurable interval from every other animal.

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[1] *Knapp's Chemical Technology*. 1848. Vol. i., p. 1.

[2] *New and Comprehensive Dictionary of the English Language, as spoken and written*. By Hyde Clarke, D.C.L. 1855.

It might appear, at first sight, as if it were not so. As industrial creatures we often look like wretched copyists of animals, far beneath us in the scale of organisation, and we seem to confess as much by the names which we give them. The mason-wasp, the carpenter-bee, the mining caterpillars, the quarrying sea-slugs, execute their work in a way which we cannot rival or excel. The bird is an exquisite architect; the beaver a most skilful bridge-builder; the silk-worm the most beautiful of weavers; the spider the best of net-makers. Each is a perfect craftsman, and each has his tools always at hand. Those wise creatures, I believe, have minds like our own, to the extent that they have minds, and are not mere living machines, swayed by a blind instinct. They will to do one thing rather than another, and do that one thing in different ways at different times. A bird, for example, selects a place to build its nest upon, and accommodates its form to the particular locality it has chosen; and a bee alters the otherwise invariable shape of its cell, when the space it is working in forbids it to carry out its hexagonal plan. Yet, it is impossible to watch these, or others among the lower animals, and fail to see that, to a great extent, they are mere living machines, saved from the care and anxiety which lie so heavily upon us, by their entire contentment with the present, their oblivion of the past, and their indifference to the future. They invent, they execute, they exercise volition in wonderful ways; but their most wonderful works imply neither invention, contrivance, nor volition, but only a placid, pleasant, easily rendered obedience to instincts which reign without rivals, and justify their despotic rule, by the infallible happiness which they secure. There is nothing, accordingly, obsolete, nothing tentative, nothing progressive, in the labours of the most wonderful mechanicians among the lower animals. It has cost none of these ingenious artists any intellectual effort to learn its craft, for God taught it to each perfect in the beginning; and within the circle to which they apply, the rules which guide their work are infallible, and know no variation.

No feathered Ruskin appears among the birds, to discuss before them whether their nests should be built on the principles of Grecian or Gothic architecture. No beaver, in advance of his age, patents a diving bell. No glow-worm advocates, in the hearing of her conservative sisters, the merits of new vesta-lights or improved lucifer-matches. The silk-worm entertains no propositions regarding the substitution of machinery for bodily labour. The spiders never divide the House on the question of a Ten Hours Working Bill. The ants are at one on the Corn-laws. The wasps are content with their Game-laws. The bees never alter the tax upon sugar, nor dream of lessening the severities of their penal code; their drones are slaughtered as relentlessly as they were three thousand years ago, nor has a solitary change been permitted since first there were bees, in any of their singular domestic institutions.

To those wise creatures, the Author of All has given, not only infallible rules for their work, but unfaltering faith in them. Labour is for them not a doubt, but a certainty. Duty is the same thing as happiness. They never grow weary of life; and death never surprises them. Wonderful combinations of individual volition, pursuing its own ends, and of implicit surrender to Omnipotent will, subduing all opposition. They are most wonderful in the latter respect, and are less to be likened to us, than to perfect self-repairing machines, which swiftly raise our admiration from themselves, to Him who made and who sustains them.

We are industrial for other reasons, and in a different way. Our working instincts are very few; our faith in them still more feeble, and our physical wants far greater than those of any other creature. Had the assembled lower animals been invited to pronounce upon what medical men call the "Viability," or managers of insurance offices "the Chances of Life," of the first human infant, their verdict would have been swift, perhaps compassionate, but certainly inexorable. The poor little featherless biped, pitied by the downy gosling, and despised by the plumed eaglet, would have been consigned to the early grave, which so plainly in appearance awaited him, and no mighty Nimrod, with endless lion-slaying hunter-sons, would have been seen to dawn in long perspective above the horizon, and claim the fragile infant as their stalwart father.

Yet the heritage of nakedness, which no animal envies us, is not more the memorial of the innocence that once was ours, than it is the omen of the labours which it compels us to undergo. With the intellects of angels, and the bodies of earth-worms, we have the power to conquer, and the need to do it. Half of the Industrial Arts are the result of our being born without clothes; the other half of our being born without tools. I use this language deliberately. The Fine Arts may be gracefully grouped round the five senses. The eye to the painter, the ear to the musician, the tongue to the poet, the hand to the sculptor, and the whole body the instrument of touch, among all. The Fine Arts thus begin each with a special sense, and converge towards the body; the Industrial Arts begin with the body, and diverge towards the special senses. One of the men of genius of our age, Thomas Carlyle, has written a prose poem, *Sartor Resartus* (literally, the Tailor Re-tailored), in which, in his own peculiar eloquent way, he shows how wonderfully the developments of humanity stand related to our native nakedness, and our need of being clothed. Without pretending to follow or rival him, let me soberly urge, that just because naked we came from our mother's womb, and naked we shall return to the Great Mother of us all, we are industrial as no other beings are or can be.

I do not propose to offer you a catalogue of the arts which our unclothedness compels us to foster. The shivering savage, in the colder countries, robs the seal and the bear, the buffalo and the deer, of the one mantle which nature has given them. The wild huntsman, by a swift, but simple transmutation, becomes the clothier, the tailor, the tanner, the currier, the leather-dresser, the glover, the saddler, the shoemaker, the tent-maker. And the tent-maker, the architect of one of the great schools of architecture, becomes quickly a house-builder, building with snow where better material is not to be had; and a ship-builder, constructing out of a few wooden ribs and stretched animal skins, canoes which, as sad experience has too recently shown us, may survive where English ships of oak have gone to destruction, we know not where.

Again: the unchilled savage of the warmer regions, seeks a covering, not from the cold, but from the sun, which smites him by day; and the moon, which smites him by night. The palm, the banana, the soft-barked trees, the broad-leaved sedges, and long fibred grasses, are spoiled by him, as the beasts of the field are by his colder brother. He becomes a sower, a reaper, a spinner, a weaver, a baker, a brewer, a distiller, a dyer, a carpenter; and whilst he is these, he bends the pliant stems of his tropical forests into roof-trees and rafters, and clothes them with leaves, and makes for himself a tabernacle of boughs, and so is the arch-architect of a second great school of architecture; and, by and bye, his twisted branches, and interlaced leaves, grow into Grecian columns, with Corinthian acanthus capitals, and Gothic pillars, with petrified plants and stony flowers, gracefully curling round them.

Once more: in those temperate regions, where large animals and trees do not greatly abound, turfs, or mud, or clay, or stones, or all together, can be fashioned into that outermost garment which we call a house, and most familiarly connect with the notion of architecture.

It is not, however, his cultivation of the arts which have been named, or of others, that makes man peculiar as an industrial animal. It is the mode in which he practises them. The first step he takes towards remedying his nakedness and helplessness, is in a direction where no other creature has led the way, and none has followed his example. He lays hold of that most powerful of all weapons of peace or war, *Fire*, from which every other animal, unless when fortified by his presence, flees in terror, and with it alone, not only clothes himself, but lays the foundation of a hundred arts.

Man may be defined as the only animal that can strike a light; the solitary creature that knows how to kindle a fire. This is a very fragmentary definition of the "Paragon of Animals," but it is enough to make him the conqueror of them all. The most degraded savage has discovered how to rub two sticks together, or whirl the point of one in a socket in the other, till the wood is kindled. It is a thoroughly technical process, not easily learned nor practised. Judgment, dexterity, and patience, are needed for its performance, and even the most sagacious of monkeys, though he has a pair of hands more than a man, has never attempted this primitive pyrotechnic art.

Once provided with his kindled brand, the savage technologist soon proves what a sceptre of power he holds in his hands. He tills with it; by a single touch burning up the withered grass of a past season, and scattering its ashes to fertilise the plains, which will quickly be green again. It serves him as an axe to fell the tallest trees with, and hollows out for him the canoe in which he adventures upon strange seas. It is an all-sufficient defence against the fiercest wild beasts; and it reduces for him the iron ore of the rocks, and forges it into a weapon of war. I might say, indeed, with truth, that his kindled brand makes the ten-fingered savage, without further help, a farmer, a baker, a cook, a carpenter, a smith, a potter, a brick-maker, a lime-burner, and builder; and, besides much else, a soldier and a sailor.

Well did the wise ancients declare that men obtained fire from heaven, but not that they stole it. It was a gift to them, in compensation for their having no share in the dowry granted to the lower animals, and it has proved an ample compensation.

You may think the sketch of the savage's obligation to fire fanciful and exaggerated; but, if you consider how every human industrial art stands directly or indirectly related to fire, whilst no animal art does, you will not regard the statement as extravagant. And civilised man, as much as his savage brother, is a fire-worshipper in his practical doings. The great conquering peoples of the world have been those who knew best how to deal with fire. The most wealthy of the active nations are those which dwell in countries richly provided with fuel. No inventions have changed the entire world more than steam and gunpowder. We are what we are, largely because we are the ministers and masters of fire.

Clotheless creatures by birth, we are also toolless ones. Every other animal is by nature fully equipped and caparisoned for its work; its tools are ready for use, and it is ready to use them. We have first to invent our tools, and then to fashion them, and then to learn how to handle them. Man's marvellous hand is, no doubt, in itself an exquisite instrument of art; but, after all, our hands are less adroit than those of the monkey, who has four, each equivalent to a right hand, whilst the handiest of us is only *ambidextrous*. Our right hands would be nothing to us, but for our wise heads; for we have to begin two steps further back, in our industrial labours, than the meanest of the animals, who practise no such craft as that of tool-making, and serve no apprenticeship to any craft. Two-thirds at least of our industrial doings are thus preliminary. Before two rags can be sewed together, we require a needle, which embodies the inventiveness of a hundred ingenious brains, and a hand, which only a hundred botchings and failures have, in the lapse of years, taught to use the instrument with skill.

It is so with all the crafts, and they are inseparably dependent on each other. The mason waits on the carpenter for his mallet, and the carpenter on the smith for his saw; the smith on the smelter for his iron, and the smelter on the miner for his ore. Each, moreover, needs the help of all the others—the carpenter the smith, as much as the smith the carpenter; and both the mason, as much as the mason both. This helplessness of the single craftsman is altogether peculiar to the human artist. The lower animals are all polyartists, and never heard of such a doctrine in political economy as that of the division of labour. The same bee, for example, markets, and bakes bee-bread, and manufactures sugar, and makes wax, and builds storehouses, and plans apartments, and nurses the royal infants, and waits upon the queen, and apprehends thieves, and smites to the death the enemies of the amazons. The nightingale, though he is a poet, builds and furnishes his nest without any help from the raven, who despises his fine arts; and the lark does not excuse herself from her household duties, because she is an excellent musician.

Nor are there degrees of skill among the animal artists. The beavers pay no consulting fees to eminent beaver engineers experienced in hydraulics; the coral insects do not offer higher wages to skilled workmen at reef-building; every nautilus is an equally good sailor; and the wasps offer no bounties to tempt veteran soldiers into their armies. Hence, there will never be professorships of technology among any of those wise craftsmen; for a professor of technology could teach them nothing, and they allow no sinecures.

The industrialness, then, of man, of which Technology is the fruit and the exposition, is carried out in a way quite peculiar to himself, and singularly illustrative of his combined weakness and greatness. The most helpless, physically, of animals, and yet the one with the greatest number of pressing appetites and desires, he has no working instincts, to secure (at least after infancy) the gratification of his most pressing wants, and no tools which such instincts can work by. He is compelled, therefore, to fall back upon the powers of his reason and understanding, and make his intellect serve him instead of a crowd of instinctive impulses; and his intellect-guided hand instead of an apparatus of tools. Before that hand, armed with the tools which it has made, and that intellect, which marks man as made in the image of God, the instincts and weapons of the entire animal creation are as nothing. He reigns, by right of conquest, as indisputably as by right of inheritance, the king of this world. And yet, a strange aspect of imperfection and incompleteness belongs to our human works, and a dark shadow hangs over them all. We can as little realise our ideal in industrial as in æsthetic art. As masons, carpenters, bridge-builders, railway-makers, and the like, our labours never content us. We blunder through our work, groping in the dark, by the help of imperfect lights, often committing the greatest errors, failing in our object, or, whilst gaining it, involving ourselves in fearful suffering and destruction. If it were not so, there would be no need for Chairs of Technology; but it is a humiliating and sorrowful confession, that such should be the case. The preventable human suffering, and the needless loss of human life, which are occasioned by our industrial doings, are in amount altogether appalling. There is not a public building, I suppose, which is not sprinkled with the blood of slain workmen. Every railway is inaugurated, as if we were pagans, by the sacrifice of human victims. Our ships bury every year in the sea thousands whose lives are not half spent, and, as Jeremy Taylor long ago said, "you can go no where but you tread on dead men's bones."

I do not refer here to injuries or deaths occasioned by great physical agencies, such as changes in temperature, or storms, which influence the lower animals as much as us, or to anything coming, with reasonable fairness, under the title, always questionable, of "*accident;*" or to such as are determined by moral causes, as like inattention and carelessness. My reference is solely to those which proceed from our imperfect, though honest, observation of phenomena; our similarly imperfect knowledge of the physical laws, which we try to guide whilst we obey them; and our similarly imperfect application of these laws in practice, to the extent that we know them. For example: no more marvellous industrial work was ever achieved by man, than that of hanging a steel-needle, rubbed with a piece of black iron ore, on the deck of a ship, and sailing by its guidance in search of strange lands, across stranger seas. This needle—the mariner's compass—has been one of the greatest revolutionising agents of the world. Yet, we know so very little of the laws of magnetism, although, as sailors, we unreservedly submit to them, that the steel-needle, which, unlike us, knows and obeys them all, has often unwittingly led goodly fleets to destruction, and innocently consigned navies to their fate. At this moment, the seamen of the world are aghast at the certainty, that their compasses, especially in iron vessels, have often betrayed them; and our men of science, anxiously communing with each other, are painfully struggling to be better ministers and interpreters of the mysterious needle. Now, contrast our condition in this matter with that of the birds of passage. WE trust to magnetism, as a swallow does to an instinct, that will guide us north, if we would go north, and south, if we would go south; and yet it fails us when we need it most, and dashes us against some Arctic iceberg, when we thought we were heading towards Tropical seas. The birds of passage are never misled in this way; their unerring instinct, which is God's finger pointing the way, bids them go, and they go; and return, and they return. They hold, we may be sure, our magnetic needles in small estimation, and they well may, for instinct here has the victory over intellect; and the wild geese who, at this season, are careering southwards, by compasses which never go wrong, have plainly greatly the advantage of us. All the suffering and death which are occasioned by our ignorance of physical laws, are dark stains upon our science, as well as griefs to humanity. From the moment that we quit the guidance of instinct, for that of interpreting, devising, and constructing intellect, we are bound to employ the last to the full. The deaths of thousands lie at the door of imperfect science; and, therefore, the necessity for Industrial Museums and Chairs like this.

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The aim of Technology, then, is sufficiently defined as the science of Utilitarian Art; but, as stated already, it is only certain departments of Utilitarian Art which it embraces. Thus, the most useful perhaps of all the necessary arts—that of Medicine—is excluded, and exactly because it is so useful: its pre-eminent utility demanding its assignment to a profession, whose sole business it shall be, and its great difficulty requiring a whole band of prelectors and practitioners to undertake its teaching. Other arts are, in whole or part, excluded for similar reasons. But without seeking to specify what they are, it will be sufficient to state, that the arts included in the domain of Technology, are the Industrial Arts, specially so called. These admit of a simple division into MECHANICAL and CHEMICAL ARTS, according as they are mainly related to Physics or to Chemistry. The division is of necessity a very imperfect one, but it is sufficiently precise for the ends of Industrial Art; and Technology has equal concern with both sections.

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With the Industrial Museum, this Chair stands in organic connection. My office, as Professor of Technology, is to be interpreter of the significance of that Museum, and expositor of its value to you, the Students of this University. The Museum, indeed, is intended to serve non-academic as well as academic Students, and to benefit the entire community of Scotland, as well as every stranger who may enter its doors. Ample provision will be made for the general public profiting to the full by the Museum, as soon as the magnitude of the collection, and the command of suitable apartments, enable the specimens to be duly arranged. With the performance of this duty, the Board of Trade, through its Department of Science, is charged, and I shall carry out their instructions as Director of the Industrial Museum. But the object of this Chair is, to unite that Museum with this ancient University, so that its Students may profit by the alliance; and my special duty is, to make that Museum the text of my prelections to you. Thus far my text is sufficiently definite; but as I must, to the best of my power, make available the continued additions, from time to time, of industrial objects to the Museum to those who study here, it would be idle for me narrowly to restrict my commission. I must, so far as I can, and in all legitimate ways that I can, turn the Museum to the largest account as a means of education.

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In lecturing, a prominent place will be given to the consideration of the economic production and application of heat and light, with which nearly every industrial art, whether chemical or mechanical, is essentially connected. This will imply the discussion of the physical and chemical properties of the natural and artificial fuels—wood, peat, coal, coke, charcoal, the vegetable and animal oils, fats, waxes, and allied bodies; the processes of gas-making and candle-making; the structure of lamps, blow-pipes, fire-places, and furnaces; the consumption of smoke, the removal of the noxious products of combustion, the ventilation and heating of apartments; the use of sulphur, phosphorus, and certain of the metals, as fuels; the preparation of coloured signal-lights; the production of self-lighting arrangements; the manufacture of lucifer-matches; the manufacture of gunpowder, gun-cotton, and other explosives.

The consideration of these subjects will require the discussion of several connected ones—as with the manufacture of wood-charcoal, that of wood-vinegar, wood-spirit, creosote; with gas-making, the manufacture of tar, pitch, pitch-oil, naptha, and the salts of hartshorn; with candle-making, that of the fatty acids of glycerine, and perhaps the manufacture of soap. This episodical list, indeed, might be extended immensely.

A Second great division will be the economic production and applications of electricity, including animal magnetism, to the production of light. the manufacture of pigments and other chemical products; the casting of metals—their reduction in special cases from artificial ores; the firing of mine-charges, the working of the telegraph, the construction of machines for the therapeutic employment of galvanism, and certain other uses.

A Third division, of more limited value, at present of great and increasing interest, will be the economic applications of light, as employed in the different modifications of Photogenic Art. This has hitherto been more an object of interest as a Fine Art, than as an Industrial one; but every day is adding to its value as an infallible, incorruptible, and most faithful copyist; and as it is intended to employ it largely in furnishing drawings for the Industrial Museum, it will receive special consideration at my hands.

A Fourth great division will be that of metallurgy, including the collection, preparation, and reduction of native metallic ores, and the economic applications of the metals and their alloys.

A Fifth will be that of building materials—stone, brick, lime, mortar, cement, wood, and the like.

A sixth will include those ancient and graceful industrial arts, the art of the potter and that of the glass-blower.

A Seventh, ramifying widely, will include the textile manufactures, and the arts related to cotton, linen, silk, wool, and other fibres. Under this, apart from the beautiful mechanical processes in carding, spinning, knitting, weaving and the like, will come the important chemical arts of bleaching, dyeing, and calico-printing; and the transition will be direct to that pre-eminent industrial art, paper-making, which, in its turn, will lead to the consideration of the Graphic Arts—drawing, printing, wood-cutting, engraving, lithography, glass etching and staining, water-colour, oil-fresco, encaustic, and other kinds of painting; the properties of drawing materials, canvas, wood, metal, stucco; the chemistry of inks, pigments, varnishes, and the like.

An Eighth division will include the arts relating to food. omitting, except indirectly, agriculture, to which Professor John Wilson will do all justice, and embracing the manufacture of sugar, of starch, of gum, of animal jelly, of extract of meat; the preservation of vegetable and animal substances from decay; the arts of cooking, baking, brewing, wine-making, and distilling.

A Ninth will include the arts related to animal products, employed otherwise than for food, embracing furs, feathers, bristles, horns, bones, teeth, shells, etc., and include the manufacture of size, glue, gelatine, parchment, leather, and the crafts of the shoe-maker, hat-maker, saddler, book-binder, gold-beater, comb-maker, brush-maker, ivory-carver, button-maker, and many another ancient guild.

And, without multiplying divisions further, let me consign to a tenth miscellaneous one, the manufacture of the mineral acids, alkalis, and other largely used chemical re-agents, as well as all the industrial arts for which a place has not been found in the preceding sections.

The programme thus slightly sketched, touches on every side, upon subjects discussed by other professors; but it only touches upon them. My teaching will, in general, begin, where theirs is deliberately arrested, not as exhausted, but as designedly proceeding no further.

I will require, for example, again and again, to insist upon the existence of certain laws of quantitative chemical combination, which every workman, whether burning fuel, consuming smoke, reducing metallic ores, gilding buttons, working a telegraph, bleaching a piece of linen, dyeing a feather, distilling an acid, making a square of soap, tanning a piece of leather, or executing a hundred other things, should obey.

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The term "*Technology*" which distinguishes this Chair, can only slowly grow into an acceptable word. The title is not of my devising or selecting, but I can suggest no better. *Industrial Art Science*, even if it were explicit, which it is not, is far too long a word, and does not suit the genius of our language. *Applied Science*, a name, which some academic institutions have adopted, is liable to the same objection, and, moreover is a misnomer; for *applied science* is but a clumsy circumlocution for art or practice, as "Theorised or Generalised Art or Practice," would simply signify science.

The great objection to the word is a phonetic one. Its sound is harsh and, unwelcome, a thing to be regretted in the case of any term intended for general use, but, especially in the case of one which, referring to every day life and homely things, should sound softly in the ear, and be "familiar in our mouths as Household Words."

INTRODUCTORY LECTURE

By Professor Allman, M.D., F.R.S., M.R.I.A.

(*Delivered to the Students of Natural History in the University of Edinburgh.*)

The course of Natural History, primarily and essentially, according to the universally received meaning attached to the term, involves Zoology. Zoology as a science, is one of wide-embracing comprehensiveness; the animal creation is its subject, but the animal creation viewed from a thousand varying points. In the first place, it will be my business to render you familiar with the *external forms* of the animated beings which surround us—with those prominent features which impress upon them an obvious character, by which they strike the eye even of the uninitiated. A correct knowledge of these external characters lies at the very foundation of all Zoology, and our attention must therefore be largely devoted to them. But to recognise their full value we must know their meaning,—we must seek for the key which is to interpret them, and this is only to be found in *structure* and *development*.

We are thus led to comparative anatomy, the life and soul of Zoology; without it I could bring before you nothing but a dry, uninteresting, and sterile mass of facts, presenting no mutual connection, and barren of ulterior consequence. It is by its aid alone that Zoology has become what it now is, and almost every step in that great progress which it has made during the last quarter of a century has been effected by the scalpel and the microscope. What analysis is to the mathematician, these are to the investigator of the laws of organized existence. Possessed of them we can construct, as it were, a great equation, involving as its unknown quantity the hidden essence of life. And though we may not yet, and probably never shall, succeed in the actual determination of this great mystery, we can at least approach to a solution—we can simplify the formula—we can get rid of all which unnecessarily complicates it, until, by successive eliminations, we ultimately arrive at that simplest expression for a living being, that elemental cell which, in the present state of our knowledge, we must accept as the grandest generalization of Biology. Here, however, we must pause, content to have at least substituted an actual truth for a scholastic hypothesis,—for those illusory phantoms over which our forefathers dreamed away their lives in groundless surmises and visionary speculations, leaving the world no wiser nor better than before, except in so far as they afforded an example to be avoided of time wasted and talents misapplied.

But the zoologist must not consider his knowledge of an animal complete unless he has rendered himself acquainted with much more than its external form and internal structure. Its particular mode of life, the manifestations of those instincts by which it is adapted to the various physical conditions which surround it, and enabled to fulfil its mission in the external world, present a fertile field for careful observation and philosophic study. It is difficult indeed to imagine a subject more deserving of the attention of the zoologist than the psychical endowments of the animated beings which surround us—their wonderful constructiveness, their mysterious migrations, their societies, and commonwealths, and governments, their almost human passions and emotions—strange foreshadowings of a higher nature—to all these a portion of our course must be devoted if we would wish to render complete our picture of animated nature.

But the objects of our study present in the vastness of their numbers a difficulty by which the young student is sure to be embarrassed, and which indeed at first must seem to him almost insurmountable. He looks abroad upon the world with its millions of living beings, as they throng upon his senses without order and without limit. He tries to study them *individually*, but feels that to obtain an adequate knowledge of any one, a lifetime would be needed. He attempts them in *masses*, but finds that he can make no general assertions of his ill-assorted groups. Lost amid the bewildering multiplicity of forms, he knows not where to turn, he is terrified at the labour which is before him, and is tempted to give up the study of nature in despair.

And this he might well do, were it not that there comes to his assistance an agent amongst the mightiest of all that have aided in the investigation of Truth —Classification lends to him a power by which, as at the utterance of a spell-word, the chaos which had surrounded him marshals itself in order, law becomes everywhere apparent, relations previously unseen weave themselves through all, and bind together the dissociated elements, and the external world, no longer a confussed mass of uncorrelated objects and phenomena, now opens up before him as one beautiful harmonious whole.

To the principles, then, of a philosophic classification, and to the application of these principles to the animal kingdom, our attention must be largely devoted. The classificatory element of Natural History, indeed, is one which we cannot confine to any particular section or period of our course; it is one which must more or less extend itself through all the lectures to be delivered from this Chair, as a pervading and regulating principle.

But the living beings which surround us are not scattered at random over the surface of the earth; we know that some are confined to one region, others to another, each finding in the place of its abode the physical conditions best suited to its organization. The labours of scientific travellers have now gathered together from almost every corner of the earth an immense accumulation of facts all bearing upon this most interesting subject of inquiry, and indications of certain great general laws regulating the geographical distribution of organized beings have been the result. The phenomena, therefore, of the geographical distribution of animals, and the elucidation of its laws, so far as these have been determined, will constitute another important section of our course.

For the exposition, however, of the laws of geographical distribution, there is needed an accurate knowledge of the physical conditions of the earth's surface—of those ever-changing phases of heat, and light, and moisture—of that infinitely varied conformation of mountain, and plain, and valley, of river, and lake, and torrent, and fen, of wastes of ice, and deserts of burning sand, of rock, and cliff, and island, and continent, and the great ocean rolling round them all—a variety to which that of organized beings is beautifully adapted, and by which their distribution over the earth is mainly limited and controlled. Physical geography, then, which renders us acquainted with this varied structure of the earth's surface, and with the meteorological conditions to which it is exposed, must find a place in a comprehensive course even of Zoology.

But organized beings are related to *time* as well as to space, and the phenomena of their distribution in time will constitute a topic of the very highest philosophical interest. We shall thus be led back to the remote ages of the past, to those early mornings of creation when beings altogether different from those which now dwell among us lived and multiplied amid primæval solitudes, and having performed their destined part in the economy of the universe, yielded up their places to others, which in their turn passed from among living forms, to be succeeded in other epochs by other races, until at last, in the great chain of succession, we are brought downwards to the days in which we are. But though those ancient tenants of our globe may have left behind no living representative, we have in their fossil remains an uncorrupted record from which the palæontologist can construct a history of the pre-Adamic ages of the earth. It is only by the study of this history, and of the strange beings which played their parts in the times which it records, that many a perplexing feature in the existing organic creation can be explained, and our view of living nature be rendered comprehensive and complete. Palæontology thus falls into Zoology and Botany as its proper sphere, and must therefore constitute a portion of the zoological section of our course.

But as the distribution of organized beings in *space* cannot be understood without a knowledge of the superficial conformation of our earth, so an accurate conception of their distribution in time will require from us a knowledge of the deeper structure of its crust, and of those changes which physical agencies have through successive periods of time effected in the disposition of its parts. Physical Geology, therefore, whose complete treatment must also include Mineralogy, claims your attention along with Palætonology; and thus, even though, in defining the duties of this Chair, no special mention were made of any other subject than Zoology, I would deem those duties incompletely performed were the Professor debarred from the exposition to his class of the phenomena and laws of Geology.

From the general glance we have now taken at the nature and mutual dependence of the subjects which are to engage our attention during the ensuing lectures, it will be seen that Natural History is no mere pastime for the dilettante, no simple antidote to ennui; that it is a department of human knowledge which must be studied deeply and earnestly if we would master the truths with which it is conversant, and appreciate their significance. There was a time when a low appreciation of the Natural History Sciences might have been well pardoned, when a true philosophy had not yet given an impulse and direction to the pursuits of the naturalist. Like other immature phases in the development of knowledge, this state of things was never destined to endure, and at the present day, and before my present audience, I feel that our science needs no apologist. We have only to reflect on the intrinsic value of its truths, their beauty and marvellousness, the high philosophy of its method, and the mental training involved in its study, to render it no matter of surprise that it has begun to occupy a prominent position in our Universities, and that Government has recognized its claims for qualification in some of the most important posts in the public service.

It is not my intention to occupy you for any length of time by dilating on the advantages of such studies to the Medical Student, with whose special pursuits Zoology and Botany have from the earliest days of scientific medicine been linked in one inseverable brotherhood. I feel sure you all see as well as I do, the light which these studies must shed on a philosophic practice, by giving us enlarged views of organization, and of the great laws of universal life; and I know that it needs no laboured argument from me to convince you of how indispensable they must be as a preliminary curriculum to the more directly practical portion of your career; affording you an intellectual discipline where you are exercised in those habits which can alone make you great practitioners, and above all in habits of diagnosis, the very corner-stone of practical medicine, and of which the Natural History Sciences present the most complete gymnasium that ever has been or ever can be offered to the student.

The determination just adopted by Government, of introducing the Natural History Sciences into the examination for appointments in the civil service of India, is a thing altogether so new, and so full of ultimate results, that I cannot pass it over without an additional word or two. In a comparatively new and in many respects still unexplored country like India, where its advancement depends so much on our knowledge of its natural productions, it is manifestly of the very highest importance that the occupiers of public offices in that country should go out provided with such information, and trained in such studies as may enable them to assist in the discovery and development of these great natural sources of colonial wealth.

But independently of the direct application of Natural History knowledge to the development of the natural resources of our colonies, there is something in the intellectual training to which the candidate for a writership in the East India Company is thus subjected, and the peculiar habit of thought which results from a course of Natural History study, which must unquestionably prove of the highest value in the special duties of his office. And, indeed, for such duties we can scarcely too highly appreciate the habits which are thus acquired of enlarged, but accurate and detailed observation, of the perception of the relative importance of attributes, and of the discrimination of closely-allied objects,—the power which is thus bestowed of perceiving at a glance the proper grounds of physical truth,—the exercise, in short, of all those faculties which are involved in a comprehensive power of comparison, and of rigidly logical induction; but, perhaps, above all, the training in the principles of a philosophic classification, for which the Biological-Sciences afford the grand and almost exclusive school. In estimating the more purely practical tendencies of such studies, it should never be forgotten that Cuvier and Humboldt have been statesmen, and that no less an authority than Bentham has deliberately stated it as his belief, that were it not for Linnæus and Jussieu, and the other great masters of Natural History classification, the science of Codification, or the philosophic construction of the laws of a country, could never have arisen.

PUBLICATIONS RECEIVED.

The Medicinal and Economic Properties of Vegetable Charcoal. By James Reid, M.R.C.S. 8vo. London, 1855.

A Manual of the Practice of Medicine. By George Hilaro Barlow, M.D. 12mo. London, 1855.

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A General Outline of the Organization of the Animal Kingdom. By J. Rymer Jones, F.R.S. Second edition. London, 1855.

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Medical Notes on the Climate of Burmah, and on the Diseases which have there prevailed among the Troops. By Charles Murchison, M.D., Physician to the Westminster General Dispensary, late of the Bengal Medical Service, etc. etc. Reprinted from the *Edinburgh Medical and Surgical Journal.*

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Practical Remarks on the Physical Diagnosis of Phthisis Pulmonalis.* By JOHN HUGHES BENNETT, M.D., F.R.S.E., Professor of the Institutes of Medicine and of Clinical Medicine, in the University of Edinburgh.

THERE are still some points with regard to the physical diagnosis of phthisis pulmonalis which require elucidation, and the following remarks are intended to direct the attention of my medical brethren to a few facts which may assist them in their attempts at forming correct conclusions under difficult circumstances.

I. *Diagnostic Importance of Bronchitic Signs as preceding and masking Tubercular Disease of the Lungs.*

The relation of Bronchitis to Phthisis Pulmonalis has necessarily engaged the attention of all those who have had much experience in treating those affections. The term "Bronchial Phthisis" (however vaguely employed), is in itself sufficient evidence of this, and serves to express a condition in which, with all the usual signs and symptoms of phthisis, those significative of bronchitis are always present to a great degree. But there never can be a case of phthisis without, at the same time, more or less lesion of the bronchi, and the supervention of bronchitis and emphysema on the tubercular disease is so very general as to require no comment. The cases which, in practice, are so difficult, especially in a diagnostic point of view, are those where bronchitis ushers in phthisis, and serves to mask the tubercular disease. The difficulty sometimes experienced in these cases may be best illustrated by a few examples.

CASE I.—I was consulted in the case of a young lady, æt. eleven years, in the year 1845. She had a short time previously recovered from a violent and prolonged attack of hooping-cough, and when I first saw her, complained of dry cough, and occasional difficulty of respiration. On percussion, the chest, on both sides, presented its normal resonance. On auscultation, there was slight harshness of the inspiratory, and trifling prolongation of the expiratory murmur, very general over both sides anteriorly, but especially on the right side, with occasional sibilation. No increase of the vocal resonance anywhere. The patient was a well grown girl, and had no other complaint or functional disorder, and the conclusion, of course, was bronchitis, with slight emphysema, following hooping-cough. This bronchitis, however, continued, the cough and occasional dyspnoea being sometimes very urgent. When eighteen or nineteen years of age, the latter symptom sometimes attacked her when dancing, an exercise of which she was very fond, and obliged her to desist. In the autumn of 1853, expectoration of purulent mucus commenced, and the appetite began to fail, circumstances which excited my apprehensions, although nothing was to be heard but sibilation and prolonged expiration; percussion being everywhere clear. The most anxious care was now taken, by means of good diet and exercise, to support the general strength, and with such success that there was no emaciation, and little falling off in her bodily powers. In the spring of 1854, however, hemoptysis commenced, at first slight, but subsequently more abundant, especially at the periods of menstruation. Now commenced, also, languor, weakness, dyspeptic symptoms, palor of countenance, night perspirations, and other signs of debility, which gradually increased, notwithstanding the use of cod liver oil and every conceivable means of support. All this time, although it was evident to me that she was consumptive, the most careful examination could elicit nothing but the physical signs formerly noticed, with the addition of occasional sonorous râle posteriorly and inferiorly, mingled with occasional mucous râle. Misty, foggy weather invariably added to her sufferings, while clear, dry weather, notwithstanding the cold, served to revive her. On the approach of winter in 1854, Dr Christison saw her with me, and confirmed the results previously arrived at from physical examination of the chest, and it was then resolved that she should spend some months at Clifton. During the journey she had a severe attack of hemoptysis, and this symptom prevented her going out for some time. Notwithstanding the assiduous professional care of Dr Symonds, the disease progressed, and she died the very day of her return to Edinburgh.

On examining the lungs, there was found great emphysema anteriorly on both sides, and considerable engorgment posteriorly and inferiorly. The middle and inferior lobes on the right side were hepatized from chronic pneumonia, and the upper lobes on both sides, but more especially on the right, contained circular patches of miliary tubercle, about three-fourths of an inch in diameter, irregularly scattered through the pulmonary tissue, communicating to it when pressed on externally, a nodular character. Between these isolated patches the lung was, with the exceptions just noticed, quite healthy.

In this case, which I occasionally saw during a period of ten years, I am satisfied that the ordinary physical signs of phthisis never were present. There was never dulness on percussion, or any indications of softening or of a cavity, and the *post-mortem* examination betrayed a condition of the lungs which proved that the signs of bronchitis and emphysema, which had been present throughout her illness, were true indications of what really existed. The pneumonia, the more immediate effects of which caused death, was of comparatively recent occurrence, and the time of tubercular deposition cannot be fixed with certitude, although, judging from the symptoms, I am inclined to consider that it dated from the spring of 1854. Here then we have chronic bronchitis and emphysema, terminating in phthisis, without any physical sign being manifested indicative of the latter lesion throughout the whole course of the disease.

Case II.—On the 29th of November 1854, I saw a gentleman, æt. 57, in consultation with Dr Mercer Adam of Dumfries, who was labouring under chronic laryngitis. He was anxious about his voice, which was of great importance to him, and complained of a troublesome flow of saliva, which had been excited some months previously by a very mild mercurial course. He could only speak in a hoarse whisper. There was frequent, abrupt, barking cough, accompanied by a copious, watery frothy mucus, which he declared came from the mouth. Deglutition was difficult, and accompanied by some pain. Appetite capricious; pulse between 60 and 70, of moderate strength; general aspect sallow, and indicative of chronic disease. On percussing the chest, it was everywhere resonant anteriorly, and equal on both sides. On auscultation, the respiratory murmurs anteriorly were feeble, of equal length, the expiration here and there prolonged, with harshness of inspiration, but no other morbid sound. From the absence of voice, no change in the vocal resonance could be judged of, but cough elicited nothing unusual on either side. Posteriorly the dulness appeared somewhat increased, but equal on both sides, and neither respiration nor cough gave any evidence of disease, further than diminution of respiratory capacity, which was attributed to the obstruction existing in the larynx, with probable collapse of the lungs behind. The treatment was directed to supporting nutrition by means of good diet and cod-liver oil, and a sponge saturated with a solution of nitrate of silver, of the strength of ℈ij. to ℥j. of water was applied to the pharynx, epiglottis, and glottis, every other day. This treatment, persevered in till the end of December, was productive of no benefit, and the troublesome flow of saliva continuing, opium, in grain doses, was given at night to check the secretion. Two or three grains of the drug, in grain dozes, at intervals of six hours, succeeded in arresting the salivary secretion, for a period varying in extent from one to three days. At length, the opium seemed to cause unpleasant dryness of the mouth, and it was observable that the appetite had much diminished since its employment, while the general strength was correspondingly lessened. During all this time I frequently examined his chest, which always presented the same signs as when I first saw him; and Dr Christison, who, on one occasion, examined his chest with me, also failed to detect any positive evidence of pulmonary tubercular disease. Towards the end of January, as it became apparent that no improvement was likely to be effected, he returned home. From this time emaciation progressed, notwithstanding the administration of the most nutritive substances. Deglutition was painful and difficult; the mouth dry, for which chewing pyrethrum root, and other remedies, were employed without avail. The expectoration increased and became more purulent, the pulse mounted to 120, he could swallow nothing, and died February 26, 1855.

The *post-mortem* examination was conducted by Drs W. A. T. Browne and Mercer Adam, the latter of whom was so good as to inform me that "the mucous membrane of the larynx was found to be considerably hypertrophied. It presented no ulceration, or traces of ulceration, and its colour and appearance were nearly normal. Both lungs were extensively interspersed with tubercles, which were of all sizes, from that of a millet-seed to that of a boy's marble. These last were isolated tubercles—not aggregated masses—ends of which could be scooped out of its investing membrane. But, besides all this, certain portions of the parenchyma of the lung were completely infiltrated with the tuberculous deposit, so that they resembled the dense hepatizations of pneumonia. At the apex of the left lung, there was a cavity the size of a pullet's egg, which was empty and dry. One or two smaller cavities were found in the right lung. Both lungs were very emphysematous."

In this case also, frequent examination of the chest convinced me, as it did Drs Browne and Mercer Adam of Dumfries, that none of the ordinary signs of phthisis pulmonalis were present. The *post-mortem* examination, however, revealed far more extensive tubercular deposition in this than in the former case, which, however, was masked by the emphysema, and the diminished breathing from constriction at the larynx. Had the voice been perfect, it is probable that increased vocal resonance might have assisted our diagnosis; but, certain it is, that, notwithstanding every pains were taken, there was no physical signs to warrant our suspicion of the existence of phthisis.

In the following case, the bronchial signs, with consumptive symptoms, were present throughout; and I have no doubt tubercular deposition existed. In this instance, however, an arrestment of the latter was brought about, with recovery:—

CASE III.—Margaret M'Kenna, æt. 27, a worker in the fields, was admitted into the clinical ward of the Royal Infirmary, April

25, 1854. She stated, that six months previously, after exposure to cold and wet, she was seized with cough and expectoration, which had continued ever since. She admitted that there had been dry barking cough for a long time, and that, three years ago, she spat blood. For some months past, the appetite had been much impaired, and there had been diaphoresis at night. On admission, she presented a very emaciated appearance. The pulse was 112 weak, with a soft blowing murmur, synchronous with the systolic sound at the base of the heart. Catamenia suppressed, appetite abolished, and a sense of load in the stomach, after taking food; headache, and a sensation of great weakness, which prevented her walking. On percussing the chest, no appreciable dulness was to be detected anywhere, the sound being clear and equal on both sides. On auscultation, with the exception of slight hoarseness with the inspiration, no morbid sign whatever could be discovered, either anteriorly or posteriorly; cough, however, was troublesome, attended with a tolerably copious muco-purulent expectoration. No sore throat, or alteration of the character of the voice. Under the use of cod-liver oil, and nutritive diet, with wine, her strength gradually improved. The appetite, however, continued to be impaired; and the diaphoresis at night, cough and expectoration continued. By the end of May, although the symptoms continued, her strength was so far improved that she could get up, and walk about the ward. A careful examination, on the 14th of June, again satisfied me and the clinical class, that none of the physical signs of phthisis were present, although the impairment of appetite, sweating, and extreme emaciation, continued. The cough and expectoration, however, were much less, and her diet was carefully regulated, so as to be as nutritious as possible, without overloading the stomach. She had ℥vj. of wine daily. She continued to improve very gradually; and the report on the 13th of November is, "Percussion good and equal over the whole chest, except over second intercostal space on left side, where there is a marked resonance when compared to the other parts of the chest. Over this place, and between it and left clavicle, the inspiration is very harsh, but the expectoration is not increased; here also, the vocal resonance is somewhat increased. Over the rest of the chest, inspiration somewhat harsh, but equal. Blowing cardiac murmur still continues; pulse 80, soft and regular. Still weak, with perspiration at night, and disinclination for food. There is harshness of the voice." The laryngeal hoarseness continued throughout December, but disappeared under the use of topical applications of a solution of nitrate of silver, with a sponge. She continued to present all the symptoms and general appearance of phthisis, the cough and expectoration being better and worse alternately, and her general strength being now greater, then less. In February and April 1855, the feet became œdematous, and the urine albuminous, symptoms which disappeared under the action of diuretics. In May and June, there was considerable improvement.

Gradually the expectoration and cough entirely ceased, the sweatings disappeared; she walked about perfectly well, though still looking thin, but at length her strength became good, and her general appearance and *embonpoint* greatly improved. On the 1st of July, I examined her chest with great care. There was positively nothing abnormal now to be discovered on percussion or auscultation, either anteriorly or posteriorly, with the exception of the slightest inspiratory harshness, and perhaps trifling increase of the vocal resonance under the left clavicle. She was then dismissed.

On considering all the circumstances of this case, I cannot but form the opinion, that notwithstanding the absence of any marked signs of phthisis pulmonalis, this woman still laboured under that disease. I would explain the slight indications which presented themselves, as being indicative of bronchial lesion, with perhaps trifling adhesion and condensation at the apex of the left lung, whilst a more scattered tubercular deposition, undistinguishable by percussion or auscultation, gave origin to the permanent cough and expectoration. In this, as in the two former cases, all the symptoms were those of phthisis; and I ascribe the arrestment and subsequent recovery, in no small measure, to the readiness with which cod-liver oil, and nutrients were taken, and the perseverance with which they were continued for nearly fifteen months.

From a consideration of the constant signs of bronchitis, and the frequency of emphysema as an accompaniment of phthisis, it must be evident that some cases are very likely to occur where the physical signs of the two former are likely to mask those of the latter. Especially, it is probable, that conditions of the lungs may exist, in which the augmented sonoriety of emphysema will so counterbalance the increased dulness of tubercular deposition, that the resulting note, on percussion, may assume a medium character, and thereby approach that of health. Whether such be the true explanation of the absence of positive signs, on percussion, in the foregoing cases, I will not pretend to say; but, in the absence of a more positive theory, I offer it as the most plausible that occurs to me.

Numerous other comments might be made regarding the relation of pulmonary tubercle to bronchitis, especially in their chronic forms; but I have contented myself, in this place, with pointing out the following important facts:—

1st. That phthisis pulmonalis may exist and prove fatal, and yet, *during the whole of its progress*, only give rise to the physical signs usually considered as indicative of bronchitis with emphysema.

2d. That such signs, when persistent with all the symptoms of phthisis, should render the physician very suspicious of the existence of pulmonary tubercle.

3d. That the analeptic treatment of such cases, and the avoidance of cough mixtures, or other means directed to the alleviation of mere symptoms, offers the surest means for procuring arrestment of the disease, and bringing about an ultimate recovery.

II. *Diagnostic Value of a Microscopic Examination of the Sputum.*

A proper appreciation of the structure of sputum requires a thorough knowledge of histology, as, mixed with the expectoration, may be found—1st. The natural secretion of the salivary and mucous glands, with the epithelial structures of the mouth fauces and pharynx. 2d. All the structures that enter into the composition of the bronchi and lungs, in various stages of disintegration. 3d. The results of various morbid processes, in different stages of development or disintegration, such as the inflammatory, tubercular, or cancerous exudations, extravasations of blood, earthy concretions, etc.; and, 4th, All kinds of substances which enter into the composition of food, which adhere to the mouth and teeth, such as starch corpuscles, and the different elements which enter into the composition of the various vegetable and animal substances used as aliment. Great pains and considerable time are also required in the examination, so as to satisfy the inquirer that nothing of importance has been overlooked.

Extensive examination of sputum with the microscope has, up to a recent period, served to persuade most scientific physicians that it was of little practical importance, inasmuch as percussion and auscultation yield us a more efficient and more exact means of determining the changes which go on in the lung. The recent careful examination of sputum, however, by Dr Andrew Clark,[1] as well as a case which has come under my notice, may induce them to modify that opinion.

Professor Van der Kolk of Utrecht[2] was the first who directed attention to the fragments of the elastic fibres of the lung in sputum, as occasionally being of diagnostic importance. That such fibres were common in the sputum of consumptives, after ulceration of the lung has commenced, is easily proved, and has been familiar to myself for the last fifteen years. The important part of Van der Kolk's Memoir, however, is contained in the following passage:—"But we ought to determine if these fibres are only observed when phthisis is already well advanced, and produced great ravages, or if they exist in expectorated matter at the first formation of vomicæ, so that they enable us to determine their existence when commencing. My conviction, with regard to this important problem, is, that it is exactly at the commencement of phthisis, and at the first formation of a vomica, that the elastic fibres were present in the greatest abundance, and that they may then be considered as among the most positive signs we possess of the presence of a cavern.

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[1] *Trans. of Patholog. Soc. of London*, vol. vi., p. 74.

[2] *Nederlandsch Lancet*, 2 Sir. D. 1.

Later, when the cavity has acquired a certain extent, these fibres become more rare in the expectoration, and are with difficulty distinguished." This statement is supported by a case, in which very insignificant signs could be determined by auscultation, although the general symptoms indicated phthisis—yet, where the fibres existed in considerable numbers in the sputum, and led to a diagnosis, which was confirmed by the subsequent progress of the case.

Such an instance as that described by Van der Kolk I believe to be very rare, and the question always arises whether the lungs were examined with sufficient care, so as to render it certain that, whilst fibres of elastic tissue, derived from those organs, existed in the sputum, no auscultatory sign could be detected. But that this does occasionally occur, I have now no doubt—1st, from the facts previously given, which show that advanced phthisis may exist without any positive signs; and, 2d, from the following case, which fully confirms the statement made by the distinguished Professor of Utrecht.

Case IV. In August 1854, I was consulted when in London by a lady, Mrs B., æt. 23, who had for some time suffered from cough, accompanied by muco-purulent expectoration. There was little emaciation, the general powers of the system did not appear to be much impaired, although she complained somewhat of weakness, and diminution of appetite. Frequent cough, with expectoration, were the principal symptoms. Careful percussion and auscultation of the chest (which was well-formed), elicited positively nothing: the percussion note was normal and equal on both sides; the respiratory murmurs distinctly audible, soft with their usual rhythm, free from all abnormal murmur—no increase of the vocal resonance. Repeated examination, especially in both sub-clavicular and suprascapular regions, convinced me of this fact. The practitioner (W. T. Iliff, jun., Esq., of Kennington) who had previously attended her, and who was again subsequently called in, informed me, however, that she herself had an impression, that some time previously (in March), she was in the habit of spitting up fragments of her lungs. Mr Iliff had taken portions of the indurated matter expectorated to Mr Quekett, who, in fact, positively affirmed them to be pulmonary substance. At my request, Mr Iliff was so good as to forward to Edinburgh, a portion of the expectorated matter, discharged during the March previous to my seeing the patient—an oblong substance, about one-third of an inch long and one-sixth of an inch in thickness, presented all the characters of a piece of lung infiltrated with tubercle. On examining sections of it under a magnifying power of 250 diam. linear, I, with some difficulty (the structure having been preserved in alcohol), determined the existence of circular bundles of areolar and elastic tissue, obscured by a mass of molecular matter in which tubercle corpuscles were imbedded. That this tissue was really expectorated by Mrs B., Mr Iliff entertains no doubt, as he himself removed it from a tenacious mass of expectorated matter. Subsequent to our correspondence on the subject, he also submitted it to Dr Beale, and Messrs Quekett and Rainey, of London, all of whom agreed as to the fact of its being a portion of human lung.

During the winter of 1854-5, Mrs B. continued tolerably well, and without medical attendance. Mr Iliff, however, was again called in on the 7th of April, and found that the disease had been slowly progressing. The expectoration was now increased and more purulent, and she had sensibly lost flesh and strength. On the 25th of May, Dr Latham was consulted. There was then flattening at the left apex, and in his opinion a cavity there. She had also hectic fever, copious night sweats, diarrhœa, haggard countenance, emaciation, in short, the usual symptoms of the advanced stage. From this time, notwithstanding the most judicious treatment on the part of her medical attendant, the disease progressed rapidly, and she expired, July 26th. An examination after death, revealed extensive tubercular disease in both lungs, with cavities in their apices; the left side being the one most affected.

The facts of this case serve, in my opinion, to establish, that there are instances in which the occurrence of disintegrated lung tissue may be detected by the microscope in the sputum, *before* any auscultatory signs are audible. On this latter point, I may observe that Mr Iliff could not detect such signs any more than myself, although he was in possession of the expectorated lung substance. There were also particular circumstances connected with my knowledge of the patient's friends, that made me unusually careful and anxious when making the stethoscopical examination, and certainly, in August 1854, five months after the pulmonary tissue was evacuated, there were no audible signs of phthisis pulmonalis. In reply to a question by me, as to how and when these signs first made their appearance, Mr Iliff stated that he could not tell, as, for many months, he was not in attendance. But I need scarcely remark that, between August 1854 and May 1855, there was ample time for the disease to have progressed to the formation of cavities.

All the circumstances of this case therefore, have impressed upon me the importance of a microscopic examination of sputum, whenever the symptoms, and a suspicion of phthisis pulmonalis exist, without any clear evidence being present derivable from auscultation.

Another important point in the physical diagnosis of Phthisis, to which my attention has been recently directed, is the circumstances which induce the *increased* sonoriety over tubercular lungs, and especially the production of the cracked pot sound, the *bruit de* *pot fêlé* of Laennec. An investigation into this subject was made with the greatest care on 100 cases, which were present in the Clinical Wards, last summer, and of this I have next to give an account.

(*To be continued.*)

ARTICLE II.—*On the Nervous Element in Inflammation, and its Influence on Treatment.* By ALEXANDER WOOD, M.D., Fellow, and Member of Council, of the Royal College of Physicians of Edinburgh.

THE subject of Inflammation never will be understood, nor will its causes, its intimate nature, the phenomena which it exhibits, the products which it evolves, and the varieties which it presents, be comprehended, until all mechanical explanations are utterly exploded;[1] until we see in the morbid changes which it produces, not its nature but its effects; until, in short, we come to regard it as depending on a change in those powers peculiar to life, which modify, overrule, or even counteract mechanical and chemical agencies, by influences which, as Whewell says, "must be hyper-mechanical, and hyper-chemical."[2] It will not do to regard disease as something superinduced on the ordinary operations of the animal body; it is a change in the operations themselves, a process, not an act, and for its comprehension it requires the study of those phenomena which, when altered, display the symptoms which we denominate Disease.

It is not proposed to enter into a detailed exposition of the nature of Inflammation, nor of the phenomena which it exhibits; we may accept the German doctrine, as popularised by Dr Bennett,[3] and regard it as a process of abnormal nutrition. This view only demands, more imperatively, the study of the corresponding healthy phenomena; for, it will surely be admitted, that to whatever extent healthy nutrition is influenced by the nervous system, to the same extent may perverted nutrition—inflammation, be found to be affected.

We are still taught, in Edinburgh, that the first phenomenon in inflammation is contraction of the capillaries, and that the rapid current of the blood through these vessels, "is the physical result of the narrowing of their calibres."[4] A reference to the process of healthy nutrition might serve to correct this error, and to show that the movements in the fluid portion of the blood are not determined by the contractions of the capillaries, their office being, as Mr Paget[5] has shown, "only the passive one of conveying blood close to those parts of the body which either grow or secrete, but by the actions of the minute tissue itself," for "each individual cell of the living system would appear to grow by attracting to itself a compound matter, and giving it a simple increase of aggregation."[1]

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[1] *L'irritation et l'inflammation artificiales sont tout simplement des resultats mecaniques.*" Majendie Leçons sur les phénomènes physiques de la vie. Tom. iii., p. 433.

[2] *Philosophy of the Inductive Sciences.* Vol. ii., p. 39.

[3] Cormack's *Journal*, December 1842.

[4] *Treatise on Inflammation.* By Professor Bennett. Pp. 30-32.

[5] *Report, British and Foreign Medical Review*, p. 289.

Much error has been occasioned by this tendency to confound the first change observed, with the first change existing, and to see in the contraction of the capillary vessels, the first passage from the healthy to the morbid state. This will be best corrected by falling back, as has been already done, on the physiological condition. "It is obvious," says Dr Alison,[2] "that the movements of the fluid portions of the blood, whereby they are applied to growth and secretion, must be determined by causes quite distinct from the contractions of vessels." "The changes," says Mr Wharton Jones,[3] "constantly going on in the blood, are attended with variations which are constantly occurring in the capillary circulation. The force of the heart alone, and not any action of the capillaries, determines the general passage of the blood from the arteries into the veins, but it is to the actions and repulsions of the corpuscles, that the varied peculiar movements of the blood in the capillaries are owing. In considering the circulation through the capillaries, in short, it is always to be remembered that the blood is not a mere inert fluid, but one containing in suspension innumerable organised and living corpuscles endowed with peculiar attractions and repulsions."

What influence, then, has the nervous system over these vital processes in their healthy state? for, by such an inquiry, are we most likely to determine the power which it exercises over them when diseased.

1*st*, The organic life of animals, and therefore the circulation in the capillaries, and, consequently, nutrition, may go on without the intervention of a nervous system. This is seen in vegetables, in the lower animals, and in acephalous monsters.

2*d*, In animals possessing a nervous system, the various functions are so associated together by its influence, and so affected by its changes, that the organic functions may be altered in various ways by alterations of the nervous tissues.

It will be admitted that the only channel through which the mind can influence the body, must be the nervous system, and that mental influences do so affect the circulation in the capillaries, is abundantly evident from the whole phenomena of turgesence—turgor vitalis, as it has been termed.

We find, also, the opposite condition of anæmia produced by changes in the nervous system. Some mental affections empty the capillary vessels of the face as readily as others fill them. "True," observes Andral, "the anæmia is in such cases only momentary, but should the state of the nervous system which has once produced it occur frequently, the anæmia may become habitual; hence, the pallid faces of men much engaged in intellectual labour, or harassed by strong passions, or possessing what is called the nervous temperament."[1]

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[1] *Alison on the Principles of Vital Affinity.* Transactions of Royal Society, xvi. 176.

[2] Ibid.

[3] Observations on the Blood. *British and Foreign Medical Review*, xiv., p. 600.

Passing from this readily recognised, and readily admitted class of cases, where purely mental states are found to affect the circulation in the capillaries, we arrive at another, where increased excitement of the functions of the sensitive nerves is followed by an increased action of the blood vessels. In proof of this, Mr Swan[2] may be quoted. "It generally happens that a painful affection of the nerves, and especially when it has been of long duration, is attended by an increased heat of the part, and likewise by a local increased action of the blood vessels; this is shown by the appearance of the parts to which the affected nerve is distributed, and frequently by the increased secretion of saliva, when the nerves distributed to these glands are implicated." Mr Earle[3] observes on the same subject, "In no case, perhaps, is the effect of a local determination more marked than in tic-doloureux. In every instance of this distressing malady which has fallen under my observation, during each paroxysm of pain, there was an evident increased flow of blood to the part, accompanied by an increase of heat more or less remarkable."

In the case of Maria May, which he records, a girl of fourteen years of age, who suffered from neuralgia of the ulnar nerve, "the integuments on the inside of the forearm were hotter and fuller than natural (p. 180). In another case, "there was a well defined red line in the whole course of the supra-orbitary nerve, accompanied with so much heat as rapidly to evaporate any cold washes which were applied." In another case, where the inferior maxillary nerve, and some of its branches were affected, "during each paroxysm there was a violent pulsation in all the branches of the external carotid artery." Pouteau[4] has also made the same observation in regard to three cases of neuralgia of the scalp arising from contusion, but occurring years after the injury, and when all the tissues, except the nervous, had recovered from its effect.

There is yet another class of cases, which seems to show that injuries inflicted on the larger masses of the nervous system, affect the circulation in the capillary vessels. These are particularly illustrated by the experiments of Flourens, by which it has been shown, that where a portion of the cerebro-spinal system was injured, the circulation and dependent vital actions were affected in those organs which received their nervous supply from that portion of the brain.[1]

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[1] *Anat. Path.* Vol. i., p. 76.

[2] *A Treatise on Diseases and Injuries of the Nerves*, p. 11.

[3] On the Influence of the Nervous System in Regulating Animal Heat. Med. Chir. Trans. vol. vii., p. 187.

[4] *Oeuvres Posthumes.* Tom. ii., p. 77.

But an examination of the causes by which inflammation is produced, will show that the nervous system possesses great power in influencing its origin. We may not, indeed, conclude with Travers, "that the nervous system forms the portal as well as herald of all diseased action; and that no altered action, of whatever description, can be instituted, but by its medium."[2] Yet, we must admit, that many of the predisponent, and several of the exciting causes of inflammation, must operate through the nervous system.

Starting then, from the fact of the extreme liability of the function of nutrition to be affected by the sensations and emotions of the mind, operating, of course, through the nervous system, we are not surprised to find, that some perverted influence, reaching the intimate tissue through the same channel, can produce the same effect. A simple illustration of this is found in the well-known fact of a paralytic limb becoming blistered, from the application of a degree of heat, which would not have injured a limb in a state of health.

A case of this kind occurred to me some time ago, which illustrates this.

CASE I.—*Illustrating the liability of a Paralysed Limb to be affected by Heat.*

A patient, many years under treatment for hemiplegia, was repeatedly observed by his attendants to have vesications on the leg of the affected side, which could not be accounted for. Suspecting the real cause, and knowing his habit of constantly sitting over a large fire, I had him watched, and found that the affected limb was scorched by an amount of heat which the sound one bore with impunity.

This gentleman was, like many other patients similarly affected, somewhat self-willed, and, persisting in keeping near the fire, his affected leg was, during almost the entire winter, covered with brown scorched patches. These entirely disappeared when increasing weakness compelled his confinement to bed.

CASE II.—*Illustrative of the liability of a Paralysed Limb to be affected by Heat.*

Dr Yelloly mentions the case of a patient, who, though insensible to the heat of boiling water, or the pain which accompanied the vesications which its application produced, nevertheless had his hand scalded and vesicated by thrusting it into a pail of hot grains, the temperature of which a friend bore with impunity.[3]

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[1] *Flourens Recherches Experimentales*, p, 196.

[2] *Further Inquiry into Constitutional Irritation*, p. 438.

[3] *Medico-Chirurgical Transactions.* Vol. iii.

Case III.—*Sloughing in a Paralytic Limb from a degree of Heat borne by a Sound one.*

In a case (Thomas Anderson) recorded by Mr Earle in the paper already referred to, placing the paralytic hand in hot grains, the temperature of which the sound hand bore readily, caused alarming blistering of the whole limb, and even sloughing at the ends of the fingers.[1]

To the same category, those cases ought probably to be referred, where inflammation in the organ to which a nerve is distributed, follows the accidental or experimental section or destruction of the nerve. Various explanations are offered of this phenomenon. Dr Ley, who quotes the cases given from Yelloly and Earle, is of opinion, that the nervous influence gives to the capillaries the power of resisting sudden alterations of temperature, which is lost when that influence is withdrawn.[2] Dr Alison is of opinion, "that the limb being colder than a sound limb, has its temperature raised by the application of a given external heat, through a greater number of degrees, and the effect of heat on vital action is in general proportioned, not to the severe temperature that may be applied, but to the degree of change of temperature that is undergone."[3] Such cases would probably be ascribed by Canstatt to paralysis of the sensitive nerves, depriving the vascular nerves of their necessary stimulus, and causing stagnation of the capillary circulation.

Starting again from the power which mental affections are admitted to possess, of altering the capillary circulation in health, we have numerous cases recorded, where grief, fear, anxiety, acted as a predisponent cause of inflammation.

Case IV.—*Violent irritation of the Mamma, produced by Fear.*

I was lately consulted, in great anxiety, by a young lady, who was suffering from intense pain in the right mamma. I found that the attack had commenced soon after the patient had received intelligence that a relative had been pronounced to be labouring under cancer of the mamma, the excision of which was proposed. The gland was swollen and painful. There was no cause for it except fear, and in a day or two the symptoms disappeared, more under the influences of mental than of physical treatment.

Cold, which is usually considered a powerful cause of inflammatory action, must act through the nervous system. The first effect of the abstraction of heat from any part, is to diminish and numb sensibility, after which the changes in the circulation take place.

An interesting class of cases, illustrating the local effects of cold on the nervous system, is that in which paralysis follows its application.

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[1] Ibid. Vol. vii.

[2] *Essay on the Laryngismus Stridulus*, etc., p. 376.

[3] *British and Foreign Medical Review.* Vol. iii., p. 15.

CASE V.—*Paralysis of Muscles of the Face produced by exposure to Cold.*

Mrs ——— æt. 32, sent in great alarm on the 8th November 1851. She had arrived two hours before from Berwickshire, by the North British Railway, and had sat with her face to the engine, and the window being partially open, and the wind in the east, she was sensible of a draught of cold air on her face. On arriving at the house of a relative in Edinburgh, she was horrified to find the mouth drawn to one side, and the speech affected. The application of a small blister on front of the ear effected a speedy cure.

CASE VI.—*Paraplegia produced by exposure to Cold and Wet.*

In the spring of 1843, I was consulted by a labourer, aged 38, who had been working in a ditch, half full of water, for two days. When I first saw him, he was a stout, healthy-looking man, but complained of great weakness of the lower limbs. In forty-eight hours he was completely hemiplegic, and the disease remained uninfluenced by any treatment.

Another argument in favour of the action of cold being primarily on the nervous system, is derived from the fact, that when the nervous power is excited, as during intense mental occupation, or under strong emotion, as in the case of lunatics,[1] a considerable amount of cold may be applied to the surface without exciting any internal inflammation.

CASE VII.—*Effect of Mental Excitement in protecting from the usual results of exposure to Cold.*

A woman, seventy-two hours after being confined of twins, and when much exhausted by a severe labour, was seized with puerperal mania. Her friends, unprepared for such an occurrence, neglected to watch her properly, and she made her escape between eleven and twelve o'clock on a cold and rainy night in March 1847, when only partially clad. It was not till five o'clock the following morning that she was discovered in a state of high excitement, drenched with rain, and chilled, but, strange to say, her health did not seem to suffer in the very least from the exposure.

Cold, however, operates in another way as a cause of inflammation. . Applied to distant parts, usually the surface, it may take effect on some individual internal part. Sometimes it increases the secretions, sometimes it arrests them, and often, when applied only to the skin, may, without producing any sensible effect of a permanent nature upon it, operate most injuriously upon internal organs, apparently the farthest removed from its influences. In such cases the nervous system must be the channel of communication, and the whole series of phenomena would come to be classed under the vague head of morbid sympathy, from the manifestations of which some additional illustrations of the power of the nervous system, in exciting inflammatory action, may be derived.

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[1] See Professor Alison's article "Inflammation." *Library of Practical Medicine.* Vol. i.

In the intimate tissue of the organs where the capillaries are formed, and where the vital processes are carried on with increasing rapidity, the nervous system, and, therefore, sympathy, exercises great power. The will, the emotions, irritants directly applied to the brain, all affect the capillary circulation, reminding us of the results of the experiments of Le Gallois, Flourens, Chossat, which showed that injuries of large masses of the nervous system always affected the capillary circulation. These physiological, and also some of the morbific causes, appear to act very rapidly, and may be so modified, as to operate either as stimulants or as sedatives of the organic functions.

There is yet another manner in which the sensitive nerves are found to act: a perverted, especially an exalted state of sensibility of a part, often tends to maintain congestion in it, and thus to predispose to inflammatory disease.

CASE IX.—*Effect of Excitement of Sensitive Nerves in maintaining Local Inflammatory Action.*

Not many months ago I was asked to see a lady, about 30 years of age, and evidently of a highly nervous temperament, suckling a baby 11 months old, who supposed herself to be labouring under abscess of the breast. The whole breast was enlarged, swollen, and exquisitely painful, but there was no evidence of the formation of an abscess. She had neuralgic pains in the neck and shoulders. Leeches were applied, at her own urgent request. Each individual leech-bite suppurated, and proved very difficult to heal; the same tendency was exhibited by a very minute ulcer on the nipple. Two very interesting cases of a similar kind are recorded by Dr Ley (on Laryngismus Stridulus, pp. 306-309).

If, then, the nervous system has such power in awakening inflammatory action, it will naturally be concluded that it may exercise considerable control in modifying the phases of its development. In a paper "On the more unusual Terminations of Scarlet Fever, especially as illustrating its Relations to Erysipelas," read before the Medico-Chirurgical Society of Edinburgh in 1852, and subsequently published in the *London Medical Gazette,* the following statement was made:—

"Believing that to constitute simple inflammation, irritation of the nervous, and excitement of the vascular system, must co-operate; and farther, that as one or other of these preponderates, so will the character of the inflammation vary; and farther, being of opinion, that in erysipelas and all allied diseases, the nervous irritation greatly preponderates over the vascular action, I think important indications for treatment may be derived from these considerations."

It is impossible for any one to attend to the cases of what are called inflammation, which are continually coming under his care, without being struck with the varieties which they present, and with the opposite treatment which they demand; and, if any clue can be found to lead us out of the labyrinth which our treatment often proves, it will be gladly welcomed by every practitioner of medicine.

One of the most obvious, and in the light of treatment, one of the most important phenomena by which inflammation is accompanied, is febrile disturbance of the system; and the general rule for treatment, founded on experience, is, that the more distinct and marked are the rigors which usher in the inflammation, and the whole phenomena by which it is attended, the more active must our treatment be. But, if we examine a little in detail, the order of disturbance of the economy in which fever is seated, we shall have little difficulty in coming to the conclusion, that if the nervous system is not its primary seat and first point of attack, it is, at all events, through this system that it so suddenly affects all the animal functions. Respiration, circulation, secretion, and animal heat, are primarily affected, and it is in accordance with physiological knowledge to infer, that this system, which, when injured in direct experiment, affects these, and the obvious use of which is to unite them in consentaneous action, is the system primarily acted on by the exciting cause. Indeed, in cases where the morbid impression has been already made, especially by malaria, the "full development of the disease may be prevented, during the first or second stage, by substances which produce a powerful restorative action on the nervous system."[1]

But, let us look for a moment at the readiness with which all the phenomena of that secondary fever, and all the treatment which it is supposed to demand, are modified by some influence operating on the nervous system. Perhaps the best marked example is that in which the nervous system has been habitually influenced by alcoholic stimuli, where not only all the constitutional symptoms of local inflammation are modified or masked, but where also the treatment demanded is largely modified also. From this we may pass to a class of cases now recognised by practitioners, where injuries not in themselves of a mortal character, have become so from peculiar susceptibility of the nervous system.

The surgeon sees these cases of sudden prostration, especially following burns and severe fractures, or in operations for recent injuries; the accoucheur, in those inflammations which have occurred in subjects whose labour has been attended or followed by exhausting hæmorrhage; the physician, in those cases where morbid poisons have been followed by rapidly fatal effects; or in a class of cases of apoplexy, to which Dr Abercrombie first directed attention, where there is sudden sinking of the circulation, from which the patient rallies, only to pass into a state of coma, which proves uniformly fatal. Severe injury, or local inflammation, may be followed, in one class of cases by severe inflammatory fever, to which a bold antiphlogistic treatment may be successfully opposed; in another, by such a form of fever, as, masked and influenced by the symptoms of nervous derangement, requires treatment of a very different kind. A most perfect example of these extreme forms is to be found in that affection which we denominate puerperal fever. It has been shown by almost every writer on the subject, and most interestingly by Drs Locock and Rigby, from their experience in the General Lying-In Hospital, that even the same epidemic may occur in very different forms, and that, in 1822, on its first appearance, it was successfully combated by active antiphlogistic treatment, while six weeks later, the state of depression rendered its employment absolutely dangerous.

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[1] Copland's *Dictionary*. Vol. i., p. 914.

This low form of puerperal fever is well described and contrasted with the others by Dr Douglas of Dublin. "The sensorium is seldom in any degree disturbed; whereas, in the other, it is so frequently, and even sometimes is excited to high delirium. The pulse here is usually, from the moment of the attack, soft, weak, and yielding, and in quickness often exceeds 150; whereas, in the first species, it is full, bounding, and often incompressible; and, in the second, small, hard, and contracted, and in both moderately quick. The eye, instead of being suffused with a reddish or yellow tint, as in the others, is here generally pellucid, with a dilated pupil. The countenance, instead of being flushed, as in the others, is here pale and shrunk, with an indescribable expression of anxiety; an expression altogether so peculiar, that the disease could in many cases be pronounced or inferred from the countenance alone. The surface of the body, instead of being, as in the others, dry and of pyrexial high heat, is here usually soft and clammy, and of heat not above the natural temperature; not only is the skin cool, with clammy exudation, but the muscles, to the impression of the finger, feel soft and placid, and as if deprived of their vis vitæ by the influence of contagion. Indeed, there is such prostration of muscular strength, and depression of vital principle, from the very outset of the attack, *that I must suppose the contagion to act on the human frame through the medium of the nervous system.*"[1] This is an extreme case, often seen by and without difficulty recognized by every practitioner. Another familiar example may be derived from erysipelas. "One party," observes an able reviewer,[2] says that "erysipelas is an acutely inflammatory complaint, and must, accordingly, be treated by extensive depletion; whilst another steps forward and claims the title of this complaint to be classed with morbid poisons, and, therefore, that precisely the opposite treatment should be adopted; and that to bleed is to destroy the patient." Mr Pearson long ago pointed out the fact that cases very rarely occur in large towns in which the practice of bleeding is admissible,[1] and there can be no doubt that the effect of town life, as contrasted with that of the country, is to develop the nervous, at the expense of the vascular, system. Dr Thomas Williams, struck, as every practitioner must be, with the varying and often opposite treatment required by various inflammations, seeks to account for it by a fanciful explanation, based on the causes from which the disease has arisen. "Inflammation," he says, "may be divided into two great classes, or into those which depend on chemical and mechanical causes, and into those which depend on the agency of morbid poisons."[2] He goes on to assert, that the first demand active antiphlogistic treatment, which is inapplicable or contra-indicated in the second. A much more probable explanation, in our opinion, is given by Mr Travers, when he refers to the nervous expansions in the skin, and shows how much more readily the brain sympathizes with affections of the skin than the heart is found to do, and points out that the various causes of erysipelas are those which might be supposed to act primarily on the nervous system. The nervous and vascular systems, of course, readily react on one another, and it depends, probably, on which is most deeply affected, whether the patient will be benefited by the bloodlettings and antiphlogistic treatment so strongly inculcated by Lawrence, or by the opium and ammonia plan also found successful, or by that of the tincture of muriate of iron, first introduced by Dr C. Bell.

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[1] Quoted in Moore's *Essay on Puerperal Fever.*

[2] *British and Foreign Medical Review.* April 1844.

It will probably excite some surprise, if I classify, under the head of inflammations, frequently exhibiting more of the nervous than the vascular character, the familiar skin disease eczema. Treated as a purely inflammatory disease, the varieties of eczema well merit the opprobrium of Mr Erichsen, "they will be found, under any mode of treatment, to be exceedingly rebellious and difficult of cure, frequently persisting for a great length of time under the most judiciously directed means, and appearing at length to cease spontaneously rather than to yield to art."[3]

CASE X.—*Chronic Eczema, arising from, and maintained by, mental anxiety.*

Some years ago, I attended an elderly lady affected with chronic eczema of the ancle and lower part of the leg, which obstinately resisted all local and the usual constitutional treatment. Circumstances existed at the time which kept her mind in a state of perpetual harassment, and it soon became obvious that every fresh mental excitement was followed by an aggravation of the eruption. She was only relieved by constitutional treatment calculated to allay nervous irritability, and by the cessation of the cause of that anxiety which seemed to produce the disease.

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[1] *Principles of Surgery*, p. 211.
[2] *St Thomas' Hospital Reports.* Vol. i., p. 323.
[3] *On Diseases of the Scalp*, p. 43.

CASE XI.—*Chronic Eczema of nervous origin.*

A still more remarkable case, in which several eminent practitioners, both here and in England, were consulted, came under my notice subsequently. The patient, a young lady, in whom the functions of the chylopoietic viscera were perfectly performed, became the subject of chronic eczema of the labia and perineum. The sensation of burning heat was indescribable, causing severe suffering, and often existing in its most intense form when no eruption was visible. She had been long under treatment before I saw her, and every remedy supposed to be applicable to eczema had been tried in vain; as the disease advanced, the implication of the nervous system became more marked, so much so, that an eminent practitioner, who was consulted, proposed to separate the skin from its nervous connection, by introducing a knife and passing it under the integuments; a proceeding which was adopted with but temporary relief, probably from the impossibility of entirely severing the nervous connection. This lady eventually recovered, under treatment precisely similar to that which is employed in neuralgia.

In the eczema of the scalp in children, so often mistaken for ringworm, we find the disease occurring during the nervous irritation of dentition, and often alternating with more severe disturbance of the nervous system.

Another analogous affection, the nervous connections of which will not soon be forgotten by those who have seen the somewhat rarer forms of it, is herpes zoster or common shingles. In some cases, the suffering under this complaint is dreadful. "We have often been surprised," says a writer on the subject,[1] "at the intense agony of feeling expressed by the sufferer under shingles." But the strongest proof of the nervous element in this disease is the intercostal neuralgia by which it is occasionally, though fortunately, very rarely, followed.

CASE XII.—*Intercostal Neuralgia succeeding to Shingles.*

I saw a case of this description where the suffering was indeed intense, and which no remedy which could be suggested seemed to relieve. The skin was frozen repeatedly, by Dr Arnott's process, without the slightest relief; this patient eventually died of pneumonia senilis, of the acute form, and of very limited extent, the disease occupying a seat precisely under the affected nerves. May not this localization be taken as an additional evidence of inflammatory disease provoked by nervous irritation?

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[1] *British and Foreign Medical Review.* July 1836.

But these are extreme cases, the great object of this paper is to show, that in *all* cases of inflammation the nervous and vascular systems are concerned, that the symptoms referrible to each are mixed up together, but that sometimes the one preponderates and sometimes the other, and that the treatment must be varied accordingly.

The symptoms of great affection of the vascular system are heat of surface, and full, hard, and forcible pulse; while that of the nervous is indicated by the nature and degree of the pain which is experienced, and the amount and character of the febrile reaction. Any such general statement, however, must be taken with certain limitations. Much, for example, depends on the period of the disease. Most varieties of pain rouse and excite the system; but "the pain which is annexed to inflammation of internal and vital organs, however it may at first rouse and excite, soon begins to depress, then to exhaust, then to overwhelm; and, as the disease proceeds, and as the vital powers fail, the nervous system sinks into an absolute incapacity of feeling pain at all."[1]

2*d*, The pain is apt to be modified by any state which affects the nervous system. Inflammation occurring in habitual drunkards illustrates this.

3*d*, The pain may be altered by co-existent diseases, especially those in which the nervous system is implicated, as typhus and other fevers, paralysis, etc.

4*th*, The tissue in which the disease is situated, modifies the pain. In inflammation of the mucous membranes it is seldom much complained of, while, in the denser tissues, it is severely felt. This may be accounted for by the fact, that the nerves with which the abdominal viscera are chiefly supplied, are not those of ordinary sensibility. They are, however, closely connected with the heart; and the nervous element shows itself in inflammation of those viscera, by the early and often rapid depression of the heart's action, which frequently occurs. In such cases, depletion must obviously be resorted to, with caution, and only in the early stages.

But inflammation differs in its effects also, according as the implication of the vascular or of the nervous systems predominates. In the former case, plastic products are thrown out with energy, and changes of structure are rapidly produced; in the latter, as was pointed out by John Hunter, the adhesive process is passed over altogether; the tendency is to spread along the surface; and the accompanying fever is usually of the typhoid character. This is seen in erysipelatous inflammation generally, in the low form of puerperal fever before alluded to, and in an erysipelatous form of peritonitis, not connected with the puerperal state, of which several examples occur in Dr Abercrombie's work, where there is early prostration of strength—a rapidly fatal course—the absence of all adhesions or plastic formations, and the occurrence of a peculiar, flabby, curd-like effusion.

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[1] Latham *on Diseases of Heart.* Vol. i., p. 196.

Another familiar example of inflammation, tending, in many instances, to no destructive change of structure, is afforded by acute rheumatism ; and in it, as our knowledge of pathology has increased, in the same proportion has our treatment been modified. Few practitioners would now be found to treat this disease on the coup sur coup method of Bouillaud, or even with the antiphlogistic rigour which prevailed twenty years ago. The whole question is admirably discussed at length by Dr Latham, in his work on *Diseases of the Heart* (Lect. x.) ; but our space only enables us to give one or two short extracts.

" One chief hazard of large bleedings is from the shock it is apt to communicate to the nervous system ; and it is this which we should especially seek to avoid when we employ venesection in acute rheumatism." . . . . " It is needed especially to abate high vascular action." . . . . " If, then, such be the pain, and such the long and undiminished capacity of suffering in acute rheumatism, well might physicians, in their treatment of it, look to such remedies as abate pain, and exercise a sedative influence upon the nervous system." . . . . " Opium, prescribed with these intentions, has encountered the disease single-handed and successfully." . . . . " Such, then, is my experience of the curative impression which may be conveyed to the entire disease, solely through the nervous system, and solely by means of opium ; and, let me add, that, considering what acute rheumatism is, in the majority of cases, and what it needs, and what it will bear, I regard the indication found in the nervous system to be, upon the whole, a safer and better guide for its treatment than that found in the vascular ; and opium, upon the whole, to be a safer and better remedy than venesection, if we are to follow one of the two indications, and to use one of the two remedies only."

Perhaps, in the lecture from which these extracts are taken, the author has sacrificed too much for the sake of forcible expression ;—bloodletting is not a remedy which exclusively acts on the circulation ; indeed, it chiefly affects the heart, and, perhaps, the capillaries also, through the intervention of the nervous system which it must, therefore, also primarily influence.

Referring to the treatment of another disease, which has been spoken of as illustrating the nervous element in inflammation—peritonitis—we all know by experience how much good has been effected by the exhibition of a full opiate after venesection, as proposed by Armstrong. That author says : " Before I knew the good effects of large doses of opium, I lost many patients in acute inflammation, although I bled them copiously enough."[1] And, again, referring to that variety which we selected, as specially illustrative, he remarks: "The great difference between the peritonitis of childbed and common peritonitis, appears referrible to the *irritable state of the nervous system*, and to that more tender condition of the abdomen, so that the inflammation generally runs a more rapid course."

But, the considerations which have been advanced are interesting in another point of view. Every surgeon who has watched the effect of severe local injuries, must have observed that the recovery of the patient is mainly affected by the degree in which the nervous system is implicated, and so it is in local idiopathic inflammations. Putting aside those cases in which, as in affections of the larynx, the patient dies from strangulation; those in which, as in diseases of the lung, he is suffocated; or those where, the heart being affected, asphyxia takes place; the other varieties of inflammation seem to produce their fatal effect through the nervous system. In its intensest forms, where it proves fatal, without material alteration of the function of any organ, as in peritonitis from perforation, it seems to act on the heart through the nervous system, just as a blow on the stomach, or violent and sudden injury to the abdominal viscera is found to do.[2] Suddenly fatal cases of dysentery or diarrhœa seem to operate in the same way; and even where they are longer protracted, as Dr Alison shows, "more or less of this peculiarly sedative effect on the circulation attends the disease, and constitutes great part of the danger." Inflammation of the larger abdominal and pelvic viscera, and also of the larger joints, prove fatal in the same way; and, even in those cases where poisonous matters are absorbed into the circulating fluid, they excite a peculiar typhoid fever, in which the nervous system is mainly implicated.

Enough has now been said to show that the various inflammations, and even the same inflammation, in different cases, displays great varieties in its symptoms, its products, and the treatment it requires, and that these varieties are mainly influenced by the predominant influence of one or other of the great "factors of inflammation"—the nervous and vascular systems. It only remains, in conclusion, to indicate, very briefly, what are the symptoms which denote an affection of the nervous system, of such a character, as to lead to any considerable modification of the usual treatment. Taken in the most extreme form, just as injuries of an extensive character cause an immediate depression of the functions essential to life, so there are certain inflammations which seem to be nearly as rapidly fatal. Peritonitis from perforation is one example; certain forms of dysentery, especially of the dysentery of children, another.

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[1] *Lectures, Edited by Thomson*, p. 210.

[2] See Alison on Inflammation.—*Lib. of Med.*

CASE XIII.—*Peritonitis from Perforation of Stomach, Fatal in Fourteen Hours.*

A servant girl, who had long suffered from painful dyspepsia, while stooping to put some coals on the fire, on the 7th of February 1844, was suddenly seized with severe pain in the bowels. This continued very intense, accompanied by great distension of the abdomen. The pulse, when I saw her, an hour after the injury, was small, feeble, compressible, and very rapid, the surface cold, the tongue brown and trembling. The patient died in fourteen hours. Several ulcers were found in the mucous membrane of the stomach, one of which had perforated the parietes and allowed the contents of the viscus to escape into the peritoneal sac. The peritoneum was injected, but displayed none of the products of inflammatory action, the patient having died too soon to allow of their effusion.

CASE XIV.—*Infantile Dysentery Fatal in Twelve Hours.*

The following case is one of not unfrequent occurrence:—Mrs ——— was confined on the 7th April 1849, of a very small female infant, probably premature. For twenty-four hours the child, though peevish, continued to do well. On the morning of the 9th, the infant was observed to cry much, drawing up its knees. It passed from the bowels about a teaspoonful of clear mucus, streaked with blood; in two hours it had a second stool of a similar kind. I then saw it when it was cold and pulseless, the anus surrounded with an erythematous blush. It died comatose within twelve hours of the seizure.

Instances of a similar kind occasionally occur to startle us in the dysentery, or even the diarrhœa of adults, especially when these diseases occur in persons in whom the nervous system has been depressed, as in a kind of diarrhœa, often very rapidly fatal, which sometimes follows delivery.

The direct effect of these sudden cases of dysentery, or even diarrhœa, on the nervous system is occasionally seen in practice.

Speaking of simple diarrhœa, Dr West[1] says, "On more than one occasion I have seen an infant reduced by it to a state of such extreme exhaustion, as seriously to endanger life. Diarrhœa, indeed, is the exciting cause of the greater number of cases of that spurious hydrocephalus in which cerebral disturbance from debility simulates real inflammatory disease of the brain."

One interesting case of this kind, which occurred only last summer, may be recorded, *first*, because it is exceedingly illustrative of the subject, and *second*, because it shews how little alive, even practitioners of experience are, to this frequent source of nervous weakness, and to the nature of that treatment which it demands.

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[1] *Lectures on the Diseases of Children*, page 391.

CASE XV.—*Convulsions arising from the Exhaustion produced by Dysentery, treated by antiphlogistics, and followed by Death.*

A female child of highly nervous parents, born 31st May 1853, was seized at 4 A.M., on the 7th of July 1855, with violent purging. I saw her about 6 A.M., and found that there had been three very copious stools, chiefly of blood and mucus; the cutaneous surface was cold, and I was struck with the sunken appearance of the features, in a plump child, where the disease had only lasted two hours. The pulse was above 100 and weak. Tongue red and glazed. There was little abdominal tenderness, but some tympanitis of the bowels. She had got an aperient dose the previous morning, which had operated freely and naturally, at bed time. An opiate enema with astringents, were prescribed. When seen again at 9 A.M., the enema had come off early with more blood and mucus, accompanied with straining, a little feculent matter of watery consistence had been voided. 12 *Noon.*—Appearance much improved, no farther discharge, child lively and seeking food, surface of natural heat, pulse about 90, of better strength, though irritable, slight intolerance of light, had slept some. She was ordered chicken tea with rice, and the enema to be repeated if the diarrhœa should return.

At 1 P.M. I left home to make a visit in the country, and on my returning at 6 P.M., I found that two hours previously she had been seized with a violent attack of convulsions. As I was from home, several practitioners in the neighbourhood were summoned, one of whom ordered the head to be shaved, an ice cap to be applied, warmth to the feet, and, without reference to the previous history, prescribed and administered a smart dose of calomel and rhubarb, she had not had any farther evacuations from the bowels.

When I saw her, the countenance was still more shrunken and pale than at my first visit, and of deadly coldness, the breathing was irregular, the eyelids were half-closed; on raising them, the pupils were found dilated and but little sensible to light, the pulse very rapid and weak. There were slight convulsive twitchings of one arm. I at once removed the ice from the head, applied warmth, gave small and repeated doses of brandy in chicken tea. The result of this treatment was marked and encouraging, and the parents, who had been looking for immediate death, were buoyed up with hope. I confess I looked forward with dread to the operation of the purgative. It took effect about 11 P.M., and from that time, the continuance of the purging, and the increasing weakness, notwithstanding the liberal employment of stimulant and nourishment, reduced the infant to the last degree. She had no more convulsions, but lingered with protracted diarrhœa, and at last died exhausted on the 20th July.

Extensive burns, especially in the young or aged, and injuries involving rupture of the urinary or gall bladder, afford also illustrations of this sudden sedative effect on the nervous system, and are very illustrative when taken in connection with the experiments on the lower animals, by Flourens, Les Gallois, and Chossat, in which injuries involving the destruction of a large portion of the nervous system were invariably found to take immediate effect on the circulation. In such cases the symptoms all indicate nervous depression. The blood forsakes the surface, which is cold, pale, and shrunken, the rigors are indistinct, or shuddering, the pulse very frequent and very small, the respiration faint and rapid, often interrupted by catching, the pupils usually sluggish, the extremities cold, the tongue shrunken and often trembling, apathy of the mental faculties, passing into stupor, subsultus tendinum, relaxation of the sphincters, and ending in death.

But the cases we see in medical practice are seldom of this extreme character. The local inflammation is probably not followed by the usual amount of febrile reaction, the pulse is frequent and compressible, rather than full, strong, and bounding, and is easily reduced by evacuations, the muscular power is exceedingly depressed, the patient generally lying in one position in bed, that position usually being on the back. If he attempts to walk he staggers, as if drunk. The expression becomes rapidly altered, and expressive of apathy or stupor, especially in those whose nervous system has been affected by habitual intemperance; or in children, we find a comatose condition alternating with convulsive epileptiform paroxysms. The patient seems unwilling to be roused, and his intelligence is sensibly diminished; there is often delirium, the patient frequently complains of a peculiar sickening internal sensation, the secretions are arrested. In such cases it is easy to say that bloodletting or evacuations should not be resorted to, but it is in the cases where such symptoms are not so well marked, where the preponderance of the nervous over the vascular element is not so decided, that our chief difficulties arise, and that room for the niceties of practice is afforded.

The safest rule to follow, will, I believe, be, to learn to separate in our own minds, the symptoms which indicate that the nervous system is involved from those which denote disturbance of the vascular; and bearing in mind how much they mutually influence and affect each other, to apply our antiphlogistic treatment more energetically where the circulation is active, and the nervous power unimpaired, but to be cautious in the use of depletion or evacuations in all cases where the symptoms indicate much affection of the function of innervation.

It may be said that in these statements there is nothing new, and that every intelligent practitioner is well aware that there are certain cases of inflammation, in which the constitutional state forbids the antiphlogistic treatment. Granted; but where this is only learned by experience, and put in practice by "rule of thumb," it is often long before the discriminating tact is acquired. If, instead of resting satisfied by veiling our ignorance under a specious name, we had sought more to analyse what we call "typhus fever," or the "typhoid condition," we would have seen that, whatever its essential character may be, its chief manifestation, as far as treatment is concerned, is the severe implication of the nervous system which it displays; and had it been understood that this was a state which greatly modified the character of those local inflammations with which it might be complicated, we would not have had to learn, by painful experience, and at a great sacrifice of life, that the predominance of the nervous element in these inflammations contra-indicated the use of the lancet.

Had this principle been understood, and acted on, preponderance of the nervous element in acute mania would have prevented practitioners from adopting the treatment by depletion, tartar emetic, and cathartics, so strongly condemned by Dr Brown,[1] and so inadmissible, even in many cases where dissection reveals the products of inflammatory action.

Had we earlier recognised the fact, that in delirium tremens there is usually "little constitutional strength and great nervous irritability," we would not have been inclined to have treated that disease by venesection, even though the congestion of the brain was attended by a full and strong pulse (Dr Höegh Guldberg), or because it was followed by effusions of lymph on the membranes of the brain. Still less would practitioners have been inclined to resort to the lancet in those cases, where, though the constitutional disturbance may be active at first, it is evidently seated in the nervous rather than the vascular system, and where the erysipelatous character of the local affection, and the evident nervous irritability of the constitution, point to exhaustion as the event to be most dreaded.

A recognition of the same fact would have prevented much of the surprise, which the results of M. Louis' experiments on the operation of blood-letting in various inflammations produced,[2] and would have enabled us to see how the inmates of an hospital were not well calculated to be the subjects of such an experiment. The results which M. Louis obtained, however, afford an interesting illustration of how limited is the power of venesection over the nervous element of inflammation, as indicated by one of its principal symptoms, pain. "The pain," says that author, "was not removed in any case by the bleedings, it was even but very little modified by general bleeding, twenty-four hours after which, it was found, in the majority of cases, only a very little less severe than on the preceding day." M. Louis gives various cases where even large bleedings failed to effect the removal of this symptom.

Had we recognised earlier, as Dr Latham has done, the double character of acute rheumatism, we should not have attempted to cure it by active depletion alone, and might have saved ourselves the record of cases dying from the means falsely supposed to be curative, or escaping with life both from these and from the less dangerous disease, only to drag out a miserable existence, with constitutions enfeebled by the drain of the vital fluid.[1] But, it is needless to multiply familiar examples; we would desire to have rules for practice, based on definite physiological and pathological laws, to know, if possible, "Why it is," as well as "that so it is," to learn that in every case of inflammation, there is a point of departure after which the influence of one or other of the two great systems concerned predominates, and how the indications for treatment are affected thereby. The consequence of having these points based on a real pathological or rational foundation, would be the establishment of a more accurate distinction between the changes in inflammation depending on the implication of the vascular system, and those which are more clearly traceable to the nerves; and on this account an ability to employ the antiphlogistic treatment in the one class of cases, with that degree of vigour which an appreciation of its nature would impart, and to refrain from it in those other instances in which the predominance of the nervous element teaches us, it would be superfluous or injurious; would that it could be truly added that our Materia Medica furnished us with as efficient means of controlling the latter, as blood-letting supplies in regard to the former.

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[1] *Cormack's Journal*, February 1840.

[2] *Recherches sur les effets de la Saignée dans quelques Maladies Inflammatoires, etc.*

One consideration may be offered in conclusion. We hear a great deal of the change which diseases have undergone in their character; and there can be no doubt that blood-letting and other reducing measures are not now borne as they would appear to have been in the same diseases some years ago. Is this to be ascribed to a change in the character of the disease, or of those who are its subjects? Probably to some extent to both; but it is interesting, if the doctrine contended for in the foregoing pages be admitted, and if we believe that in all diseases, certainly in inflammatory diseases, just in proportion as the nervous system is implicated, so will reducing measures be ill borne. We observe—

1*st*, That in the inhabitants of warm climates (especially the dark races), the nervous system is less excitable, and latent diseases more common; just as they are found in this country, to affect the old oftener than the young.

2*d*, That in these countries the nervous (typhus) form of fever seems unknown;[2] the *continued fever* of the hot season presenting the purest example possible of the synocha of our nosologies; and being most successfully combated by large bleedings, leeching, free purging, and the exhibition of tartar emetic.[1]

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[1] Bouillaud's *coup sur coup* method was as follows—on the *first* evening from 16 to 24 oz. are drawn from the arm; on the *second* day two bleedings of from 14 to 16 oz. from the arm, with a local blood-letting of from 12 to 20 oz. *Third* day, a fourth bleeding and cupping similar to that of the former day. *Fourth* day, if not cured, general blood-letting to 16 oz. *Fifth* day, if the disease still continues, a bleeding to 12 oz. All relapses are treated by fresh venesections.

[2] "It has indeed never been known, as I am informed, that a single case of this fever has occurred on either side of the Indian Peninsula."—*Bancroft on Yellow Fever*, p. 510.

3d, Is not one obvious effect of our present system of education, of our high civilisation, of the mental activity consequent on social co-operation, and of many agencies called forth by the state of high pressure excitement in which men now live, to give an undue prominence to the nervous system, and thus to influence the character of all the diseases, and more especially of the inflammatory diseases to which we are subject.

4th, Again, among the poorer classes, will not the same effect be produced by the over-crowding of our larger cities, and the obvious effect of the increase of our manufactories in keeping a large floating population on the boundary line of pauperism, which they are liable to overpass on the occurrence of any commercial fluctuation.

5th, Is it not also possible "that the use of ardent spirits (once counted amongst drugs, and not used as a popular beverage before the beginning of the sixteenth century), but now so much misapplied,"[2] may have a similar effect?

6th, Certain it is that diseases of the nervous system are on the increase; witness the extension of our existing lunatic asylums, and the multiplication of new ones, in a way which cannot be accounted for even by the admitted fact that they are now used less as prisons, and more as places of cure, and, therefore, that a larger proportion of lunatics are sent to them, than was formerly the case. Witness also the facts so strikingly adduced by Dr Brigham,[3] as to the effect of the multiplied means now in existence of stimulating the mental faculties. That author shows that insanity prevails more in countries where the mind is allowed the freest exercise, and that in America the number of lunatics is as 1 to 262 of the inhabitants, while in England it is about 1 in 820. He ascribes this increase to four principal causes:—*First.*—Too constant and too powerful excitement of the mind, which the strife for wealth, office, political distinction, and party success produces. *Second.*—The predominance given to the nervous system by too early cultivating the mind, and exciting the feelings of children. *Third.*—Neglect of physical education, or the equal and proper development of all the organs of the body. *Fourth.*—The general and powerful excitement of the female mind.

7th, Considerations of the nature of the foregoing, not only seem to indicate one cause, at least, of the change in the type of disease, but to suggest numerous prophylactic and curative means in connection with the views advocated. These, however, our limits forbid us to enter on for the present.

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[1] Twining's *Clinical Illustrations of the more important Diseases of Bengal.*

[2] Marx on the Influence of Civilisation on Diseases. *British and Foreign Medical Review.* July 1844.

[3] *Remarks on the Influence of Mental Cultivation and Mental Excitement on Health.*

ARTICLE III.—*On the Diagnostic Value of Albumen in the Urine.*

By GEORGE W. BALFOUR, M.D., St And., Cramond.

> "Multum egerunt qui ante nos fuerunt, sed non peregerunt."—SENECA.

History.—As the base of physiological development is an amorphous blastema, so the base of that spiral, whose apex is truth, is a nebular mass of semi-oracular aphorisms and imperfect observations, into which the more intently one looks, the more clearly he sees the foreshadowing of posterior discoveries.

Far be it from me to say that the ancients did not know the occasionally albuminous state of the urine, or that they had not connected this state of the urine with disease of the kidney, but nowhere do I find either fact unambiguously stated, and it seems to me as rational to suppose that Solomon was learned in the principles of organic chemistry, because he says that "dead flies cause the apothecaries' ointment to stink,"[1] as to suppose that Hippocrates knew that albumen was present in the urine, and that it was a sign of intractable disease of the kidney, because he says that, "when bubbles settle on the urine" the kidneys are affected, and the complaint protracted.[2]

As a further illustration of my meaning, I may mention that Dr Adams, with the same facts before him, does not allude, in his earlier edition of Paulus Ægineta,[3] either in the body of the work, or in his learned commentary, containing references to almost all the known ancient medical authors, to what subsequently strikes him as so remarkable an example of precocity in medicine.[4]

The liver was regarded by the ancients as the great organ of sanguification, and disease of it as the great source of dropsy. Alexander [5] explaining its pathology, by stating that the liver thus incapacitated for forming blood, forms instead, air, phlegm, or water, corresponding to the three great divisions of dropsy, tympanites, anasarca, and ascites.

Some, as Erasistrasus, referred all dropsies to hepatic disease, or obstruction; others, as Galen and his successors, acknowledged various sources.

Yet, notwithstanding that, Ætius[6] and Avicenna[7] connect dropsy with induration (lapideitas) of the kidneys, accompanied by "urina subtilis, pauca in quantite;" notwithstanding that we have an interesting and apparently veritable case of "Bright's disease," related by Schenck,[1] in which "Dexter ren omnem amiserat colorem, ut albam haberet carnem;" yet we have Van Helmont[2] necessitated to say, "Quapropter vitium (hydrops) potius in Rene mihi subsistere visum, quam in hepate," and giving his reasons for saying so. After him we have Bonetus[3] giving an interesting case of dropsy, under the head, "De Cachexia," etc., however, in which the kidneys "lactis fere instar albicabant."

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[1] Eccles. x. 1, Taken, which is most important, in connection with the words of a commentator, who says, "The acid volatile salt in insects, mixed with the alkaline substances in perfumes, causes fermentation and putresence."

[2] *Hippoc.* Syd. ed., vol. ii., p. 766, sect. 7, aph. 34.

[3] *Translation of the Works of Paulus Ægineta.* By F. Adams. London, 1834. Vol. i., Book iii., and Commentary.

[4] *Paulus Ægineta.* Syd. ed., vol. i., p. 552. London, 1844.

[5] *Paulus Ægineta.* By F. Adams. Vol. i., p. 438.

[6] *Med. Tetrabiblos,* in *Med. Artis Principes.* Tome i., p. 559. Francof, 1567.

[7] *Op. Medica.* Fol. Venet. 1564. P. 858.

Morgagni[4] distinctly recognises the dependence of dropsy on kidney disease, giving a case in which "Renis tandem utriusque structura intima confusa apparuit." He also recognises the occasional dependence of convulsions on kidney disease. Hitherto we have had the signs afforded by the urine in disease, restricted to considerations as to its quantity and colour, its deposits and floating clouds, hypostases, enæoremata, and nubeculæ; now we have its chemical composition regarded, Cotunnius[5] being the first to demonstrate its coagulability by heat in certain cases of dropsy; seeking for support to a false theory,[6] he found and recorded a true fact. About the same time Fordyce[7] remarked, that the kidneys, if relaxed or stimulated, allowed the passage of chyle, serum, coagulated lymph, or red blood, but he specifies no causes. By and by, Darwin[8] makes the ropiness of the urine, and its coagulability by heat, distinctive of his third species of diabetes; and, ere long, Cruickshank[9] connects the coagulability of the urine by heat with dropsy; says, that in such cases the urine differs but little from the serum of the blood, and evidently thinks it a bad symptom, he "has known a patient carried off by it in a few weeks."

He was closely followed by Nysten,[10] Wells,[11] and Blackall;[12] the first showing the necessity for more numerous analyses, supported by necroscopic examinations, for determining the relation of coagulable urine to dropsy and to the state of the urinary organs; the other two endeavouring to supply this want, and that with such success as almost to forestall Dr Bright, inasmuch as Dr Blackall asserts, that coagulable urine "very generally attends what may be called original dropsy;"[1] and, moreover, that of the cases examined both by himself and Dr Wells, "the kidneys were diseased in a very unusual proportion.[2] The direct logical conclusion, however, he left for Dr Bright,[3] who, in a series of elaborate reports, clearly evolved the connection of coagulable urine, dropsy, and diseased kidney, thus giving a place in nosology to a new disease which bears, as its only unobjectionable designation, the name of its distinguished discoverer—Bright's disease of the Kidneys. This brilliant discovery was erelong amply verified by many efficient observers, among whom may be mentioned Drs Christison,[4] Gregory,[5] Osborne,[6] Solon,[7] Rayer,[8] etc. etc. And now, instead of regarding the coagulability of the urine as an interesting phenomenon of doubtful import, medical men were but too apt to exalt it to a fundamental symptom[9] of a most fatal and obstinate disease. Careful observation could not but show that there were many cases of albuminuria which had not that character, hence a reaction, to some extent militating against Dr Bright's views, backed by the names, of Drs Elliotson,[10] Graves,[11] etc. Thus far I have endeavoured to trace, in a cursory manner, the history of this interesting disease, from that early period of medical history when it bore an unrecognised existence, to that comparatively recent one in which its existence was acknowledged, but its diagnosis doubted, because one striking symptom, albuminuria, was common to other diseases, both acute[12] and chronic,[1] was occasionally present in apparent health,[2] and was of limited duration, temporary, in many cases of dropsy;[3] and though diminution of the density of the urine, diminution of its solid contents, particularly of the urea,[4] and the presence of the latter in the blood,[5] are, as I believe was first pointed out by Christison, the only truly pathognomonic symptoms of Bright's disease. Still, as the presence of albumen in the urine is so constant a concomitant as to be certainly present at one period or other of the disease, it seems to me to be of considerable importance to determine its true value, which I shall endeavour to do, first, by considering the general pathological origin of albuminous urine, *i.e.*, its proximate causes; and, second, under the head of special pathology, I shall consider to what particular proximate cause its appearance, in each disease or class of diseases, is due; so that from our knowledge of the persistence or non-persistence of that cause in any given case, we shall be able to determine the probability of complete restoration to health, of temporary recovery with liability to relapse, or of a gradually increasing disorganization of the kidneys.

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[1] *Observ. Med. Rariores.* Lugd. Batav. 1644. P. 417. *De Hydrope*, Obs. xii.

[2] *Ortus Medicinæ cura filii.* Amsterod, 1652. *Ignotus Hydrops*, p. 407, *et seq.*

[3] *Sepulchretum Anatonicum.* Gen. 1679. P. 1027.

[4] *De Sedibus et causis Morborum.* Venet. 1761. Epist. xlii., art. 17, p. 160.

[5] *De Ischiade Nervoso.* Viennæ, 1770. P. 30.

[6] He was attempting to bolster up some fanciful theory as to the cause of Sciatica, and his experiment was prompted by an equally fanciful theory as to the cure of dropsy, supposing that the effused fluid passed out directly by the kidneys, he, knowing that healthy urine was not coagulable, tested by heat, that passed during the resolution of a dropsy; before the half was evaporated there was left a mass "tenerrimo jam coacto ovi albumini persimilem." His theory was obviouly just a reversal of that of Morgagni, etc., as to the formation of dropsy.

[7] *Elements of Practice of Physic.* Lond. 1770. P. 18.

[8] *Zoonomia.* Lond. 1794. Vol. i., p. 316. Latham also observed coagulable urine in diabetes so early as 1795.—*Vide Blackall on Dropsy.* Introduction, p. v.

[9] *App. to Rollo on Diabetes.* Lond. 1797. Pp. 447, 448.

[10] *Recherches de Physiologie*, etc. Paris, 1811.

[11] *Transactions of a Society for the improvement of Medical Knowledge.* Lond. 1812.

[12] *On the Nature and Cure of Dropsies.* Lond. 1813.

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[1] *Op. cit.*, p. 193.

[2] *Op. cit.* p. 347.

[3] *Reports of Med. Cases.* Lond. 1827. Vol. i.

[4] *Edinburgh Medical and Surgical Journal*, vol. xxxii., 1829; and *Treatise on Granular Degener of the Kidneys.* Edinr. 1838.

[5] *Edinburgh Medical and Surgical Journal*, vol. xxxvi., 1831.

[6] *Dublin Journal of Medical Science*, Jan. 1834. Republished with additions. Lond. 1835.

[7] *De L'Albuminurie.* Paris, 1838.

[8] *Traité des Maladies des Reins*, T. ii. *Nephrite Albumineuse.* Paris, 1840.

[9] Christison, *op. cit.*, p. 39.

[10] *London Medical Gazette*, vol. vii.

[11] *Dublin Journal of Medical Science*, and *Clinical Medicine* Dublin, 1843. Pp. 894-898; also pp. 539 and 717.

[12] Viz., Pneumonia—Williamson, *Edinburgh Medical and Surgical Journal*, vol. lvi. Peritonitis—Nysten. Fever—Mateer, *Edinburgh Medical and Surgical Journal*, vol. xlvii., and Solon. Erysipelas—Christison. Measles—Solon, Rayer. Small-pox—Solon, Rayer, Williamson. Sequela of Scarlatina—Blackall, Wells, Hamilton, *Edinburgh Medical and Surgical Journal*, vol. xxxix., etc. etc. Cholera—Craigie and Christison, *Edinburgh Medical and Surgical Journal*, vol. xxxix. They found the urine first passed always low in density, and albuminous; and Christison found urea in the blood before the commencement of collapse, during it, and notably after reaction had set in.

General Pathology.—The urine is supposed to be secreted in the following manner: the capillaries[6] having parted with a portion of their watery contents in the glomeruli, which, by some (Hyrtl) is supposed to be reabsorbed as from a shut sac, and by others (Bowman, etc.) to flow down the tubules, thus aiding to form the urine (this being the opinion most received and most consonant with facts), become ramified on the walls of the tubules; here the more serous portion of their plasma transudes (Henlé), from it the epithelial cells (Goodsir) lining the tubules select the urea and other salts in solution, the remainder, after nourishing the neighbouring tissues, is reabsorbed by the venous radicles and lymphatics which are numerous (Quain); the cells, after becoming filled, probably burst,[7] and are swept down as debris by the flow from the malpighian bodies. Now, although protein compounds and urea, etc., are probably convertible (Bird, etc.), they are certainly not equivalent; and even supposing such extra-vascular articles as epithelial cells could so far forget the duty for which they have been so wonderfully formed, as to take up albumen through mistake for urea, yet there is a membrane (membrana propria) between them, which, fitted only to permit the passage of saline solutions, must itself be altered ere the albumen could reach those forgetful cells, while the fact that these, unknown in healthy urine, are so constantly present in the early stages of albuminuria, forms, as shall be subsequently shown, a further proof that they are not to blame. True functional albuminuria—a vicarious excretion of albumen—is, therefore, simply impossible, and the proximate cause of albuminuria must be sought for in those physical laws which regulate the passage of fluids through animal membranes. Kürschner[1] has found that fluids pass through these in the following order: water, saline solutions, and, lastly, albuminous or gummy fluids; and Bruecke[2] has shown that certain membranes allow albuminous fluids to pass more readily than others, and that this probably depends on an increased size of their pores; while Liebig[3] has confirmed Kürschner's experiments by measuring the force necessary to drive the various fluids through membranes; but he did more, for he ascertained that by a continuance of the experiment, the pores become apparently widened, so that after twenty-four or thirty-six hours, the force of pressure might be lessened by one-third or even one-half, without any diminution of the result. Thus, the widening of the pores of a membrane not naturally fitted for the act, must be regarded as the proximate cause of the passage of albumen through it. This may be produced by force of pressure; and length of continuance is, in this case, equivalent to increase in amount; and from what has been recorded of the effects of venous obstruction,[4] this cannot but be regarded as an efficient source of pressure, and, consequently, of transudation of albumen, while the described phenomena of inflammation[5] teach us that it, or rather its preceding irritation, is another source of widening the pores, effectual to produce the passage of albuminous fluids through membrane; moreover, as we learn from Kürschner, that membranes permitting the passage of saline solutions are but one step removed from those permitting the passage of albuminous fluids,

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[1] Pthisis—Williamson, Solon, Blackall, *Pur. Expect.*, p. 349. Cirrhosis of Liver—Williamson. Cancer of Pylorus, Williamson. Diabetes—Latham, Darwin, Dupuytren and Thenard, *Recherches sur la Diabete*, Paris, 1803; and Goods. *Study* etc., London, 1825, vol. v., p. 474. Mateer—Williamson, Chevalier, *Journ. de Chim. Med.*, Jan. 1829; and *Edinburgh Medical and Surgical Journal*, vol. xxxii., p. 438, etc. etc.

[2] *Vauquelin et Fourcroy, annales de Chimie*, tome xxxi.; Paris, 1798. Bostock in *Bright's Reports*, p. 80. Solon, *op. cit.*, p. 14. Christison, *op. cit.* p. 36.

[3] Graves, Blackall, Wells, etc. etc. In this *resumé* I have purposely avoided mention of any of the more recent writers. My object has been to show that temporary albuminuria, and its co-existence with all the more important forms of disease in which its existence is now acknowledged, including cholera, was recognised even at that early date.

[4] Brande, *Transactions of a Society for the improvement of Medical and Chirurgical Knowledge*, vol. iii., p. 187, was the first to recognise this fact.

[5] First observed by Prout in *Bright's Reports*, vol. i., p. 84.

[6] All do not enter the glomeruli.

[7] This seems more consonant with the usual fate of organisms which have

fulfilled their functions, than the contrary idea that they empty themselves and are again refilled.

[1] Wagner's *Handwörterbuch der Physiologie*, Bd. i., s. 62.

[2] *De diffusione humorum per Septa mortua et Viva.* Berol. 1842. S. 55.

[3] *Untersuchungen über einige Ursachen der Säftebewegung.* Braunschweig, 1848. S. 6.—*Vide* also Henlé *Rationelle Pathologie*, Bd. ii., s. 467-8. Braunschweig, 1847.

[4] Robinson, *An Enquiry into the Nature and Pathology of Granular Disease of the Kidney.* London, 1842. Emmert, *Beiträge*, etc., and Henlé, *Pathologie*, Bd. ii., s. 458, etc. etc.

[5] *Bennett on Inflammation as a process of Anormal Nutrition*, etc. etc.

so we can understand that the membrana propria of the renal tubules requires but a small increase of pressure, or a comparatively trifling irritation, to cause the passage of albumen through it at least in small amount, hence the frequency of albuminuria. A third source, from purulent admixture, will be briefly considered under the next head.

Special Pathology.—This third division of the subject I shall again subdivide into two heads, non-dropsical and dropsical albuminuria, both of which must be again divided into two subsections, non-febrile and febrile. Under these subdivisions will be ranged the various diseases in which albuminuria occurs, with sole reference to the mass of cases, and not to individual exceptions.

Non-febrile—Non-dropsical Albuminuria.—The occurrence of this, in apparent health, rests chiefly on a solitary case of M. Solon,[1] on a remark by M. Desir,[2] that the urine of a healthy man may become albuminous for twenty-four hours, as a consequence of excitement of the urinary passages; and on another by Christison,[3] that as a consequence of indulgence in cheese, pastry, and other indigestible articles of food, the urine may become temporarily albuminous. As has already been said, the true excretion of albumen must be regarded as a misnomer, the renal health of such "hommes sains" must, therefore, be but delicate, and this form of albuminaria must be regarded as probably depending on the presence, in the blood, of mal digested food or other irritant matter, as, therefore, closely connected with those other cases depending on the action of diuretics;[4] and such irritants as cantharides,[5] etc., which, in small doses, are diuretics, and in larger ones pure irritants, producing bloody urine, etc., as an example, therefore, of albuminuria from the slightest conceivable amount of irritation. To this cause must likewise be ascribed the presence of albumen in diabetic urine, the sugar being here the excitant; it is probable, that it is only from the long continuance of this excitement, that at length a sufficient amount of irritation is established to permit the passage of albumen, or it may be always present, only rendered difficult of detection from its smallness in amount in comparison with the quantity of urine, at least we have evidence that its detection has been looked upon as the sign of a commencing cure, the first symptom of which is lessening in the amount of urine.[6]

The simplest and most transitory form of albuminuria from venous obstruction, is that depending on pregnancy in an otherwise healthy subject;[7] its most severe and intractable is that from diseased heart;

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[1] *Op. cit.*, p. 14.

[2] Rayer. Nephrite albumin. *Traite des Maladies des Reins.* Vol. ii., p. 581.

[3] *Op. cit.*, p. 36.

[4] Mateer. *Edinburgh Medical and Surgical Journal.* Vol. xlvii., pp. 83 and 95. Osborne, *op. cit.*, p. 34, etc.

[5] Christison, p. 37, etc.

[6] Dupuytren and Thenard. *Vide* Good's *Study of Medicine.* Vol. v., p. 474.

[7] Lever. *Guy's Hospital Reports.* New Series (2d) vol. i.

but, as this latter form is always accompanied by more or less dropsy, and too frequently by chronic renal disease, it shall be considered more at large under a subsequent head. The albuminuria from purulent admixture, belonging to this head, include, besides, the chronic pyelitis of Rayer, an obscure and ill-defined disease; calculous pyelitis, in which the symptoms are sufficiently distinct; some cases of chronic vesical catarrh and gleet, all of which have such symptoms as preclude the possibility of mistake, and which need not here be detailed; still, another source of albuminuria, which has, I believe, not been hitherto recognized, I refer to the purulent admixture depending on diseased prostate. This occurs chiefly after the middle period of life, and is distinguished by the absence of all symptoms distinctly referrible to suppuration of other parts of the urinary organs, by the presence of an enlarged prostate, by the usual characters of purulent urine—hazy or milky when first passed, separating by rest into a clear upper stratum, more or less albuminous, as shown by the action of heat and nitric acid—and a lower one having all the properties of pus, not ropy, but mixing readily with the urine, becoming gelatinous on addition of ammonia or potash, and containing numerous cytoid (pus) corpuscles, by the urine being of normal density, and containing the normal proportion of urea, however long the disease may have continued; the most characteristic signs, however, are the more or less complete absence of purulent or albuminous admixture from the urine first passed in the morning, particularly if passed in bed, and its often considerable increase after exercise, and also the gradual diminution of the purulent admixture, as the involution of the gland progresses; this can only be recognized if the patient be in the decline of life, and for some time under observation. None of these symptoms preclude the co-existence of renal disease, but they all, particularly the presence of urea in normal amount, shut out the possibility of its being, to any great extent, while the matutinal remission, particularly if complete, and the increase of pus, after exercise, point clearly to a source of pus remote from the usual course of the urine, yet in close connection with it, and one, moreover, which must lie above and not below the point of exit. Such a source we have in the prostate gland, and this apparent pus may be little more than a greatly increased quantity of the natural secretion, proceeding from an uncommonly enlarged gland, inasmuch as its natural secretion is albuminous, and contains cytoid bodies (Henlé).

I append a few notes of a case which occurred to myself.

Case I.—Having some time ago occasion to examine the urine of an old gentleman, in whom it was known to be albuminous, and the prostate to be enlarged, I found it to possess the following characters: it was acid; possessed a spec. gravity of 1015, was of a hazy amber on being passed, and on standing, became gradually clear at the top, with a whitish substratum; this substratum was easily miscible with the rest of the urine, and became gelatinous on the addition of ammonia; both it and the clear portion coagulated by heat; that from the clear portion was chiefly examined; a portion of it was redissolved with effervescence by nitric acid, leaving an amount of coagulum answering to Christison's "feebly coagulable." The microscope showed the presence of numerous pus corpuscles, the absence of fibrinous casts of the renal tubercles, and also of renal epithelium, and the presence of numerous minute threads (acicular crystals?)[1] like the tails of spermatozoa. The amount of purulent deposit was very much less in the morning from what it was after exercise, the other characters of the urine remaining the same. The urea amounted to about 100 grains in the twenty-four hours;[2] and this and all the other characters of the urine remained constant during all the occasions on which, at that time, I examined it; and a year after, the only difference was, a lessening of the milky substratum, probably depending on commenced involution of the prostate.

Also, a few notes of a case which occurred in India, for which I am indebted to my brother, J. Balfour, Esq., H.E.I.C.S.:—

Case II.—A gentleman, aged about 45, applied for something for his water, which he stated to be perfectly clear and natural in the morning, and about noon to become milky, this milkiness gradually increasing till night; during night it again became clear.

The specific gravity was found to be rather high (exact numeral not mentioned); the clear urine first passed was not coagulable by heat; the milky urine was so. The microscope showed its colour to depend on the presence of numerous pus corpuscles. An attack of fever, or a smart purgative, always clears the urine for the time.[3]

There is slight stricture of the urethra, and considerable enlargement of the prostate. Some years ago he had a small abscess of the epididymis; but it is long quite healed, and there is nothing to be felt there.

Febrile Non-dropsical Albuminuria.—To this class belong cases of albuminuria, occurring during the course of inflammatory and

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[1] I have since suspected that these might be acicular crystals of carbonate of lime, which we know crystallizes in that form (Bird, etc.), and also to be present in the prostatic secretion of old men, or at least in their prostates (Quain's *Anatomy*, vol. i., p. 1216), and that it was probably to their presence the effervescence on the addition of nitric acid was due.

[2] Rather a small amount, but my patient belonged to Lecanu's third class. *Vide* Golding Bird, p. 73.

[3] Something of the same kind, but to a very much less amount, I observed in Case I.

I have just received more particular accounts of this man's urine. My brother febrile affections, and which may be considered as occurring first at the commencement of such diseases, and second, towards their close, the so-called critical albuminuria.

1*st.* At the commencement of acute affections, the urine is occasionally found to contain albumen, sometimes in considerable amount; it contains also, more or less, epithelium and blood corpuscles, replaced, as the disease progresses, by fibrinous casts of the tubules and plastic corpuscles (organic globules); general anasarca may or may not be present. The renal affection here presents itself as concurrent with the other affection, arising from the same cause, and running a similar course, affording the same evidence during life as the hepatic and splenic deposits, found after death, of the existence in some cases of inflammation, at least, of a general disease of the blood. With the exception of Finger,[1] I know of no author who has mentioned such cases. The following interesting one occurred to myself:—

CASE III.—J. D., a boy, aged eight years, had been out of sorts

states, that the man's health is fair, and much better than last year, when he first came under treatment—which has been tonic, chiefly ferruginous, I believe.

Urine passed 19*th October, examined* 20*th.*

	No. 1—6 A.M.—℥viii.	No. 2—Noon—℥viij.	No. 3—3 P.M.—℥iv.
Colour, ...	Pale straw.	White—opalescent.	Yellowish opaque white.
Spec. grav....	1021.	1018.	1023.
Sediment,....	Slight cloud.	None visible.	...
Action, ...	Faintly acid.	Perhaps alkaline.	Neutral.
Heat, ...	No effect.	Boils viscidly.	Boils viscidly, with much froth.
Nitric acid, ..	Ditto.	Boils more freely, with immediate separation of flocculent matter to half the amount of the fluid.	Same as No. 2, with red colouration of fluid.
Microscope,..	A few crystals of phosphates, epithelial scales, and many vibriones.	As No. 1, with addition of numerous round bodies, in which the action of acetic acid displays one, two, or three nuclei.	Same as No. 2. Globules thought to be fewer, but much molecular matter present.

To the above interesting note I have only to add, that the elapse of twenty-four hours has obviously, in that warm climate, been sufficient to make trifling additions to the microscopic appearances, and has caused, particularly in No. 3, the breaking up of many of the cytoid bodies into granular matter, from the alkalescence and incipient putrefaction of the urine.

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[1] I have no access to the original paper, which appeared in the *Präger Viertel-jahrschrift* for 1847, No. IV., but his Translator in *Monthly Retrospect*, for 1848, says, that the albumen was present in the urine during inflammation, and while fibrinous exudation was being thrown out elsewhere.

for two or three weeks previous to the 23d of July last, when he became more decidedly ailing, On the following Thursday, after his return from school, he slept out of doors on the grass till his mother's return from her work at 8 P.M; next day, he lay all day amongst the hay, too ill for anything else; anasarca, previously not noticeable, dated its apparent origin from that day. On Monday, July 30, when I first saw him, he was anasarcous all over, the swelling tense, elastic, and not pitting readily; he had slight cough, and some dyspnœa, but his breathing was tolerably regular; his pulse 80, tongue slightly furred, bowels regular, urine scanty; I procured about a tablespoonful, which was all he had passed since morning; it was dark coloured, acid, moderately coagulable, and deposited a sediment consisting of epithelium and blood-corpuscles. He was ordered to have a warm alkaline bath every night, three grains of Dover's powder every four hours, two grains of calomel at bed-time, and five of scammony next morning.

I next saw him on August 1; his bowels had been well moved by the medicine; he was perspiring freely, the anasarca much better, the tongue clean, but the pulse was 100, the breathing hurried, the cough hacking, no pain in the chest, no expectoration; but crepitation was audible over the whole of the right lung, and over the superior portion of it, where the percussion was dull, the expiration was bronchial; the left lung presented nothing anormal; the urine was scanty and albuminous, as formerly; bath stopped; Dover's powder continued, with calomel every second night.

August 2.—Pulse 104; breathing 40. Percussion dull over the whole of the right lung; superiorly the respiration was bronchial, with a faint friction sound; inferiorly the friction sound was more marked; the respiration undecided, vesicular masked by deep râles; the percussion sound over the left lung was normal, its respiration puerile; no expectoration; he was bathed in perspiration; anasarca nearly gone from lower extremities, bowels not moved, tongue foul, especially at its sides, but moist; scammony to be repeated next morning; the urine amounted to about ℥x in twenty-four hours, of a dark brownish colour, acid, and deposited a brownish sediment; the supernatant opalescent fluid was of spec. grav. 1021, and contained about ¼ of albumen. Nitrate of silver caused a precipitate insoluble in nitric acid, even when aided by heat, yet readily soluble in ammonia, the chlorides were therefore present, and as they continued to be so during the whole course of the disease, we now dismiss them. The sediment consisted entirely of altered blood-corpuscles, exudation globules, tube casts (for the first time) in considerable number, with a small amount of epithelium and of amorphous urates.

August 3.—Pulse 96; breathing 30. Percussion on the right side anteriorly still dull, posteriorly somewhat clearer, respiration anteriorly bronchial, posteriorly coarse, vesicular mixed with fine mucous râles, left side as formerly; one mouthful of bright yellow expectoration was coughed up this morning; anasarca all gone, except from face, which was still puffy; slept well last night for first time; skin moist, bowels not moved, scammony to be repeated immediately. The urine amounted to about ℥x. in twenty-four hours, was of a greenish hue, and deposited a grey sediment; it was acid, and of spec. grav. 1021; heat caused a considerable precipitate, partly soluble, without effervescence in nitric acid, showing increase of phosphates; the albumen amounted to but a mere trace; the sediment was largely composed of lozenges of uric acid; the tube casts were not so numerous, and contained exudation globules, which were also present in the fluid; a very few altered blood-corpuscles were still present.

August 4.—Pulse 80; breathing 30. On right side, the percussion was as yesterday; the fine mucous râles heard behind had passed into coarse crepitation; anteriorly the respiration was undecided, vesicular inspiration, with bronchial expiration; anasarca quite gone. The urine amounted to about ℥xx. in twenty-four hours; this day's was of a pale sherry colour; yesterday afternoon's of a dark smoky hue; both together were acid, of spec. grav. 1021, feebly albuminous, and deposited a loose flocculent sediment, which consisted of uric acid, a few tube-casts, and exudation globules, which were no longer so granular, and when acted on by acetic acid, displayed a double nucleus. He had been sick, and vomited in the morning; his skin was moist; he had no uneasiness, moved freely in bed, lay with his head low, and turned easily, all which he had formerly been unable to do; he felt hungry also, but was still restricted to an *ad libitum* supply of gruel; five minims of tincture of squills, and ten of tincture of muriate of iron, were ordered to be given in water twice a-day.

August 6.—Pulse 80; breathing 20. Over the entire right lung, the respiration was soft vesicular; slight dulness on percussion still perceptible anteriorly; tongue clean and moist; skin moist; felt hungry, and was allowed usual diet of porridge and milk night and morning, with bread for dinner, but in restricted quantity; bowels not moved; scammony ordered to be repeated next day; Dover's powder and calomel to be stopped; squill and iron alone continued. The urine amounted to about ℥xxx. in twenty-four hours, was slightly opalescent; acid of spec. grav. 1012; contained no appreciable quantity of albumen, and deposited a loose flocculent sediment, which consisted of the usual epithelium, and a few granular corpuscles, with double nuclei.

August 9.—Pulse 72, breathing 24. Percussion on right side still slightly dull over upper portion of lung; the respiration was vascular, with a fine crepitant râle heard on a deep inspiration, but which did not recur a second time; the left lung, whose respiration had been puerile, was now natural in every respect. His urine amounted to about ℥vj. during the previous twelve hours, was acid, of sp. gr. 1020, of a pale sherry colour, slightly opalescent, contained a mere trace of albumen, and deposited a trifling flocculent sediment which consisted of uric acid, a few granular corpuscles, one or two tube casts, some epithelium containing crystals of uric acid, and some normal epithelium, as usually occurs. His diet was ordered to be improved; good soup given. Next day he was to get up for a little.

August 13.—Perfectly well. Urine in last twenty-four hours amounted to ℥xxx. acid of spec gravity 1010; contained a mere trace of albumen, deposited a few granular bodies, some crystals of uric acid, some amorphous granular matter and a few fine tube casts (apparently lessened in bulk by contraction, hornising).

August 21.—On this day the urine was of spec. grav. 1010, and contained no albumen and no deposit.

On *September* 22 the urine was acid; spec. grav. 1015, contained no albumen, and but a few crystals of uric acid. Since that time it was again tested and found of similar density, and wholly free from albuminous admixture. This interesting case sufficiently tells its own tale, and it forms no part of my present plan to enter into its relation to the pathology or treatment of pneumonia.

While writing this, I was called to see the following case, which is rendered, if possible, more interesting by the entire absence of any, even the slightest œdema, and by its presenting a perfect example of acute congestive albuminuria.

CASE IV.—Girl H. æt. 13. Seen on December 1st for the first time; she has, however, been in bed for two days, and a fortnight ago suffered from a severe cold. To-day she has a hot burning skin, violent headache, slight loose cough, with trifling pain in the right axillary region; complains also of occasional pains shooting through her belly, but she had yesterday a dose of salts and senna, to which they may be due. Her tongue is white and slimy; pulse 120; no appetite; great thirst; percussion is clear over the whole chest; a few cooing râles to be heard over the right side; the pained part is sore to touch, but there is there nothing anormal to be heard; her urine is very scanty, what she has just passed—1 P.M. —is of a dark porter colour, letting fall a dark coloured sediment, it is acid, of spec. grav. 1025, contains about one-fourth of albumen, being thus moderately coagulable, and the sediment is composed of much epithelium, some of it in patches, as if stripped from the side of a tube, numerous altered blood-corpuscles,[1] many oval nuclei, and a very few granular corpuscles. She was ordered ten minims of ipecacuan wine every four hours, with blue pill and rhubarb at night; a warm poultice to be applied to the chest. She continued much in the same state on the 2d, the urine being spec. grav. 1020, and containing but one-eighth of albumen. On the 3d, much the same, the urine containing amorphous urates; an opiate was added to her draught, and eight grains of Dover's powder given at night; after a refreshing sleep, she awoke free from pain, with pulse at 60. The urine containing a great amount of amorphous urates, altered blood corpuscles and epithelium, with one-eighth of albumen, being of spec. grav. 1025, and amounting to about ℥xxv. in twenty-four hours.

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[1] As one form of altered blood corpuscle must now be regarded Golding Bird's "small organic globule," having frequently seen these, particularly in Case VII., in connexion with urine, containing other and better known forms of altered blood-corpuscle, and conceiving they might be related one to another; to test the matter, I added some fresh drawn blood to urine, when the following series of phenomena occurred, when first added to urine,—the corpuscles became crenated at their margins, from puckering of the external membrane; at this period they are flat, as may be seen when they tumble over, and pressure on the

The girl continued to convalesce favourably, her urine presenting a considerable amount of urates with a trace of albumen, till December 9th, when it was acid, of spec. grav. 1012, and without a trace either of albumen or urates, and but one or two granular corpuscles. To-day, December 11th, it is of natural density, 1018, and every way normal.

2*d*, The urine is occasionally albuminous towards the close of all diseases in which albuminous exudation occurs, whether they be acute or chronic; in acute diseases, it is supposed to be critical, in chronic ones anomalous or unaccountable; both seem to be entirely analogous to those cases occurring after the ingestion of indigestible substances; that is, the albuminuria is caused by the irritation of the kidney, produced by the presence in the blood of a protein compound (in this case the product of absorption), which the system wants vitality to convert into those substances—urea and urates—normally excreted by the kidneys, and which, consequently, reach those organs in an imperfect and irritant form. Hence we can readily understand the truth of Heller's observation,[1] that the more albuminous the urine, and the longer it continues so, the more dangerous the disease; and that this must be more especially the case in pneumonia, in which we have not only a diminution of vital

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thin covering glass reproduces their circular outline, but this they speedily regain, becoming small spheres, about two-thirds of the diameter of the normal corpuscle. During this change, their outline is often strongly marked, and the central light portion assumes various forms—circular, oval, crescent-shaped, or heart-shaped; during it also, all the hæmatine becomes dissolved out, and there remains but a structureless globule, unchanged by hot or cold acetic acid (indeed, I have *boiled* them in it). The only difficulty in detecting them, lies in the management of the light, too much light at once rendering them invisible This discovery I made known to my friend, Dr Chisholm of Dumfries, asking him to re-examine the matter; I have received a note from him completely corroborating my views, and agreeing with me in regarding these altered blood corpuscles; as Golding Bird's small organic globules, which is all the more probable, that Bird instances the urine of two menstruating women as that in which he had seen them (Ur. Dep. p. 342). They are certainly not so uncommon as he represents them.

[1] Heller's Archiv. für Path. Chem., Bd. i., hft. 8.; and *British and Foreign Med. Chir. Rev.* for 1853.

power, from excess of exudation, but a positive obstruction to oxygenation, and consequently to those chemical changes necessary for the metamorphosis (Bird, etc.). In many chronic diseases there is also an adjuvant cause in the pré and co-existence of an anormal urine (phosphuria), which, irritant to the bladder, must also be, to some extent, irritant to the membrana propria of the renal tubules, and may, from long continuance and consequent accumulation (as gutta cavat lapidem) of this trifling irritation, at length, of itself, prove sufficient for the production of some amount of albuminuria. Hence, probably, the frequency with which such cases terminate in albuminuria, and the fatality of this symptom.—(Bird.)

There is also a large class of diseases, of which scarlatina may be taken as the type, in which albuminuria is alleged to occur as a concomitant of the desquamative process; that this process extends to the kidney in scarlatina, is known;[1] that it does so in the other diseases of this class, is possible; and if, with Henlé, we regard the desquamation as taking place in consequence of the death of the epithelium from effusion, between it and the basement membrane, which effusion, in the case of the skin, is merely watery, and becomes re-absorbed, and, in the case of the kidney, must be albuminous (that being the lowest type of renal-irritative effusion), and is washed down along with the loosened epithelium by the secretion from the glomerules, then albuminuria must be constantly present during the desquamative stage of such diseases, as is, indeed, believed by some,[2] its occasional nondetection depending solely on its large dilution, and the insufficiency of our test. But if, on the other hand, we regard mere congestion of the basement membrane as an efficient cause of the death of the epithelium, and its subsequent desquamation as produced by the growth of new cells, as being, in fact, what it is in seeming, a sign of returning health, then the presence of albumen in the urine cannot be regarded as an essential part of the disease, but as an accidental complication, more or less closely allied with that form of renal affection occurring in the course of scarlatinal dropsy, which shall be afterwards considered; and its prevention must, consequently, depend, more or less, upon appropriate treatment, and must form a legitimate object for such treatment; which is accordingly the opinion of others.[3]

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[1] Helfft. Zeit. für Rat. Med., Bd. ii., s. 343, quoted from his work *De Desquamatione*, etc., Diss. Inaug. Berol. 1842., Johnson, Simon, etc.

[2] Becquerel, Thomson, Begbie, etc. *Vide Monthly Journal* for October 1852, p. 322.

[3] Frerichs, Brightsche Nierenkrankheit, etc. Bell, *Monthly Journal*, Aug. 1851, p. 111. Dr Andrew Wood, *Monthly Journal*, July 1852, p. 93; and myself, *Monthly Journal*, May 1853, p. 428, etc., I may here remark, that I do not regard the desquamation accompanying albuminuria as at all analogous to that which takes place—say in catarrh of the Schneiderian membrane—there the secretion is afforded by the follicles, the epithelium by the plane surface of the membrane—the epithelium of the renal tubules being wholly secretory, an amount of excitement sufficient only to produce a quick growth of cells, produces solely

These remarks apply, in a similar manner, to all other diseases of this class, in which albuminuria is occasionally present, as erysipelas, measles, etc., etc.

There is still another disease—cholera, to wit—in which the cause and pathological position of the albuminuria are alike obscure; it cannot be said to be either truly concurrent or critical, yet Dr Hassall's strong statement,[1] that he has not met with a single instance of the absence of albumen from the early samples of urine passed in cases of cholera, borne out by the recorded observations of others (Begbie, Parkes, Solon, Rostan, etc.), shows that, during the course of the disease, something occurs productive of renal irritation and exudation. What is it? and when does it happen?

The extreme beauty of the caste of the tubules, their coloration with urates and crystalline contents,[2] point out the period of their formation as anterior to that of complete cessation of secretion, yet posterior to its usual and natural flow, *i.e.*, about the commencement of collapse, when the commencing stasis of the blood must of itself be sufficient to produce exudation, mingling with and consolidating the scanty secretion from which the gaping absorbents greedily and rapidly remove every drop of moisture, giving thus to the casts their peculiarly sharp outlines; on the return of secretion, the presence of those cylinders must prove a source of irritative albuminuria, additional to that already existing in the inspissated[3] condition of the blood, which must slowly return to its normal circulation through a series of phenomena precisely analogous to those produced by incomplete ligature of a vein. The presence of urea in the blood would seem to be, not so much the cause as the concomitant of secondary fever, the best preventive of which, as well as the best diuretic, would seem to be, the liberal administration of weak saline fluids, aided by the withholding of stimulants, the exhibition of renal eliminants being obviously useless, if not injurious. The purulent urines belonging to this head are similar to those already mentioned, either in an early and acute stage of the disease producing them, or during some temporary exacerbation thereof.

The second division, or Dropsical Albuminaria, shall be also subdivided into two heads—Febrile and Non-febrile.

1*st, Febrile Dropsical Albuminuria*—This head comprises, exclusive of scarlatinal dropsy, a series of cases formerly regarded as

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increase of secretion; anything beyond that is at once destructive of true secretion, and of the life of the cells—retarding also their reproduction.

[1] *Appendix to Report on Cholera Epidemic* of 1854, p. 299.

[2] *Appendix*, etc., p. 300.

[3] "*Extreme Grade der Dickflüssigkeit, wie in der Cholera.*" Henlé Path., B. ii., s. 25. It is easy to understand that so called "congestion" of this kind may be accompanied by the appearance of anæmia—as the wine jars of Nineveh would now look empty to their former possessors, though they probably contain as much wine—*i.e.* of the solids peculiar to it—though certainly as unfit to drink as cholera blood is to circulate.

examples of recovery from the first stage of Bright's disease; but as they arise from the same cause as catarrh of any other mucous membrane, are attended by similar symptoms, allowing for difference of structure, and are with allowance for differences of function, amenable to the same treatment, I believe the generic name of Renal catarrh will be found more appropriate, the attending dropsy is not secondary but concurrent, coetaneously produced by the same cause, cold applied to the general surface of the body—I append a few cases out of many which have occurred to myself.

Case V.—J. H., a boy, æt. eight years — first seen on 27th November 1854—had been colded for about ten days, his body was observed to be slightly swollen four days ago for the first time, his face and body are now considerably anasarcous, his limbs, lying in bed, are not swollen, he has had a dose of salts, his bowels are loose, tongue clean; pulse 96 and soft, complains of no pain, except a slight uneasiness in the scrobiculus cordis, his urine is scanty, high coloured acid, density 1025, highly albuminous, depositing lithates abundantly mingled with granular corpuscles, and a small amount of epithelium, no tube casts present—ordered a sinapism over loins, an alkaline warm bath every night, and three grains of Dover's powder every four hours.

He continued to perspire freely, his bowels keeping open and his urine gradually increasing in quantity, and decreasing in albuminous admixture, till December 8th, when it was of spec. grav. 1020 acid, and wholly free from albumen, which has never re-appeared —he was now allowed to get out of bed, to be warmly clad, and gradually to return to his usual habits.

Case VI.—A. M., a boy, æt. six years—first seen on August 24, 1855—slight puffiness of his face had been observed three days previously; on this day there was super-added some swelling of the abdomen, his urine was of a pale smoky hue acid, spec. grav. 1020, with about $\frac{1}{8}$ of albumen, and deposited numerous pale crystals of uric acid, and a few altered blood corpuscles, being otherwise quite well, and finding it difficult to keep him in bed, or even in the house, he was treated with an occasional purgative, and a tonic hydragogue diuretic compound of Squill and Tinct. Mur. Fer., in six days the swelling and albuminous admixture of the urine were gone, and he has since remained well.

Case VII.—boy G., æt. three years—first seen on 28th August 1855—was told that for the last four or five days something appeared to be the matter with him, as he was looking ill—his face puffy, and when lifted he complained of his back being hurt, the lower stratum of his urine also formed a jelly—the whole amount being scanty; his tongue is clean, his bowels rather loose, he complains of no pain now, and his urine is somewhat increased in quantity.

August 29.—Morning urine about ℥vj. acid, sp. gr. 1014, of a dark smoky hue, with dark flocculent deposit, and containing about ⅛ of albumen; the deposit consists of many altered blood corpuscles, numerous granular corpuscles and tube casts; he got Dover's powder with a nightly warm bath; under this treatment his urine gradually improved; on September 5th it possessed a density of 1018, was acid, of a pale amber hue, with a reddish flocculent deposit; there was but a mere trace of albumen, the deposit consisted of uric acid, with a great many small crystals of oxalate of lime, numerous granular corpuscles, a few epithelial tube casts, a few fibrinous ditto, and a good many of Bird's small organic globules (*Vide* note page 618).

On September 7th, the urine possessed the same characteristics with the addition of many oxaluric crystals, dumb bells and ovals of every variety, some of them presenting the appearance of small calculi, and all showing striæ, with polarised light.

On September 10th the urine was sp. gr. 1020 acid, pale amber, without a trace of albumen or epithelium—few fibrinous casts—numerous lozenges of uric acid and oxalate and oxalurates of every form, some almost circular, the two bells or rather kidneys having joined at their edges. To have iron and squill.

September 13*th*.—Urine, sp. gr. 1015, acid, not a trace of albumen, quantity of pale uric acid in thick lozenges joined in form of a cross, and some ordinary oxalates. On September 26th the oxalates had disappeared, and there existed no deposit except numerous large lozenges of uric acid; by the middle of November these had also completely disappeared, and the urine was normal in every point.

Scarlatinal dropsy—seems to be a renal catarrh of a more acute and extensive character proportioned to the probable effect of cold on a skin weakened by previous disease, and still extra-sensitive to external impressions in consequence of desquamation of its cutical, and re-acting on an organ also feeble from similar causes; it is characterized by all the above symptoms in excess, and from that very excess it probably often, certainly more often than simple renal catarrh, leads to effusion within the renal substance and future degeneration of that gland. But, we may have dropsy without albuminuria, just as we may have albuminuria without dropsy; in the first case the cause exhausts itself on the cutaneous capillaries, and such cases occur independent of scarlatina, and are proof of sound renal health, while the second shows an irritable state of the kidneys from previous disease or natural delicacy of constitution; my observations certainly corroborating those who regard the strumous constitution as favourable to the development of albuminuria, more than one of a family often being found to suffer, or have suffered from it.

2*d*, *Non Febrile—Dropsical Albuminuria*.—Bright's disease is the disease belonging to this, the last division of our subject, and though time and space would fail were I to enter into its many pathological relations, yet both my subject and object require me to take a cursory survey of some of them. Three opinions may be regarded as prevailing as to its pathology.

1*st*, Simon's, who views it as a consequence of catarrhal or other irritation of the secreting surface of the gland.

2*d*, Johnson's, who agrees with Gluge in regarding it as a fatty degeneration of the gland (Stearosis).

And 3*d*, Henlé's, who supposes it to be a true cirrhosis of the kidney: each would seem to be by turns correct. But I cannot, with Simon, suppose, that the albuminous exudation, finding a difficulty of escaping down the crooked ducts, stops them up and bursts them, because pathological evidence proclaims the rarity of such a source of disease,[1] and makes it more probable that a continuance or frequent repetition of the irritating cause, by producing effusion on the inside as well as the outside of the membrana propria, gives subsequent rise to either of the other forms of degeneration.

Nor can I, with Johnson, suppose that the gland, finding the blood fatty, strives to eliminate it, and gets choked up in its endeavours; that would be giving Van Helmont's Archæus a country seat in the kidneys, and would only require to supply him with a scavenger's broom and a copy of the nuisance removal act, completely to modernise the fable. No; the kidney, like any other organ, may become fatty from faulty nutrition (senescence), and we know, that during pregnancy, that gland removes a vast quantity of fatty matter,[2] without becoming diseased; but pathological stearosis has a more probable explanation, in being regarded as a retrogade metamorphosis of an acute exudation.[3] Henlé's supposition, cirrhosis, may form part of an acute process, complicating the stearosis; more generally it takes its origin from repeated small exudations, more especially, as Henlé himself remarks,[4] from such as occur in the course of such diseases as give rise to venous obstruction—particularly affections of the heart.

Both stearotic and cirrhotic kidneys may become, from subsequent absorption and contraction, hard and lobulated; cystic degeneration probably depends on a peculiar development of the original exudation.

We have seen that neither the presence of albumen nor of fibrinous tube casts in the urine,[5] is a certain sign of the presence of

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[1] *Vide Monthly Journal* for 1848, p. 101.

[2] Cohen, *De Urina Gravidarum*, Diss. Inaug., Heidelb. 1843; Also Henlé's *Pathologie*, Bd. ii., s. 232.

[3] Rokitansky, Bd. i., s. 289 and 157; *Vide* also *Reinhardt on the Origin of the Granular Cell;* Schmidt's *Jahrbücher*, Oct. 1847, and *Monthly Retrospect* for 1848. There is room for supposing that blood corpuscles may become granular cells, having for an intermediate stage, Bird's small organic globules; that is, if they can undergo this change out of urine; say in inspissated serum, which has yet to be shown.

[4] *Rat. Pathologie*, Bd. ii., s. 310.

[5] First observed by Nasse *Schmidt's Jahrb.* 1841. Bd. xxxiv., p. 356, and found in the urine and *in situ* after death by Henlé, who first recognised them as fibrinous casts of the tubules. *Zeitschrift für Rat. Med.*, Bd. i., s. 68.

Bright's disease, but that they may both be produced temporarily by various causes of acute or chronic origin; we also know that these phenomena occur more persistently in the course of this (Bright's) disease, which, after death, presents us with kidneys whose condition is pathologically referrible to one or other of those causes, and whose only truly pathognomonic symptoms, diminution of the solids of the urine, particularly of the urea, is clearly referrible to destruction of the secreting surface of the gland, while the concomitant symptom of sickness may be produced by the attempted vicarious secretion of the urea by the gastric mucous membrane,[1] and may be regarded as the earliest intimation of the presence of this substance, in anormal quantity, in the blood. The leucophlegmatia is common to all diseases interfering with nutrition, greater perhaps in this, because the composition of the blood is more directly interfered with. The absence of albumen from the urine in certain cases of advanced disease, is probably due to complete destruction of the walls of the tubules, and of their vascular plexus and consequent cessation of any attempt at secretion; the watery urine still passed, coming partly from such parts of the gland as have escaped complete destruction, but chiefly from the Glomeruli, which, to the last, are uninjured (Johnson, Bowman, etc.), and are even said to be enlarged.—(Toynbee.) We are, therefore, justified in considering Bright's disease, as merely the ulterior stage, or stages, of those sources of albuminuria already considered, chiefly of such as arise from catarrh or venous obstruction, and we must consequently regard the occurrence of albumen in the urine as of little value in a diagnostic point of view, occurring, as it does, from the most trifling, as well as the most serious causes,[2] but of the utmost importance in regard to prognosis; as if we find it in connection with any cause which is irremoveable, as heart disease; or liable to recurrence, as catarrh, we may warn against the probable ultimate occurrence of Bright's disease;[3] this, our knowledge and our warning furnishing us at once with an efficient means of warding off that disease by proper hygienic means, which need not now be more specifically entered into, and which must vary with each individual case. We see also, that, in relation to the probability of life, the previous occurrence of albuminuria must affect our opinion exactly in proportion to its cause. The question, therefore, has the urine ever been albuminous, and under what circumstances? commends itself as an important one to those medical men who have to do with such researches.

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[1] Bernard and Barreswil, *Archiv. Generales,* 1847, and Henlé's *Pathologie* Bd. ii., s. 210.

[2] *Vide* Henlé's *Rok Pathologie,* Bd. ii., s. 474.

[3] *Op. Cit.,* Bd. ii., s. 314.

ARTICLE IV.—*Account of a late remarkable Trial for Poisoning with Arsenic.* By ROBERT CHRISTISON, M.D., Professor of Materia Medica and of Clinical Medicine in the University of Edinburgh, and Ordinary Physician to the Queen for Scotland.

TOWARDS the close of last June, Mrs Wooler, wife of a retired mercantile gentleman, residing a few miles from Darlington, died of a tedious illness, which put on the characters of slow arsenical poisoning. A coroner's inquest having been consequently held, a verdict of death by poison was returned, but without pointing at any individual as the guilty agent. Some relatives of the deceased, dissatisfied with the result, petitioned the Home Secretary of State that farther inquiry should be made; the petition was granted; and the definitive result of a new investigation, before the magistrates of Darlington, was the committal of the husband to prison on a charge of murder by poison. The trial came on at Durham assizes on the 7th December last; and after lasting three entire days, terminated in the acquittal of Mr Wooler.

There has seldom been a criminal trial in this country, and certainly none for the last twenty years, which has involved so many points of interest to the medical profession. I have, therefore, at the suggestion of various parties, been induced to give some account of it; for which, indeed, I have enjoyed peculiar opportunities,—having incidentally become a witness in the case, having heard the proceedings during the first two days of the trial, and being supplied with full information, not merely of what passed on the concluding day, but likewise during all the previous inquiries before the coroner's jury, and the bench of magistrates.[1]

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[1] I may, perhaps, be allowed to state here, how I came to be concerned in the case; because the part which I had in it at the beginning has been strangely misrepresented in various quarters, and made the subject of groundless animadversion.

On the 25th of June, only two days before the lady's death, I received from Dr Haslewood, Dr Jackson, and Mr Henzell, her medical attendants, a statement of her case, with a request for advice as to their proceedings. They had for some time entertained a growing suspicion that the symptoms depended on arsenical poisoning; and latterly they had obtained doubtful indications of arsenic in the urine. But up to the date of the letter, the 22d and 23d June, they had not imparted their fears to any one; and they were in doubt whether the suspicion was so well-grounded as to call on them to declare it, especially as the lady's husband was one of those on whom suspicion might eventually light. I replied that, since the symptoms, at that period, though referrible to arsenical poisoning, were such as natural disease might also produce, they should be cautious in divulging their suspicions, until they had either strong general evidence against an individual, or positive proof of arsenic in the urine, vomited matters, or remains of articles administered. I mentioned, at the same time, how I thought they might best obtain satisfactory evidence of the positive presence or positive absence of arsenic in these quarters; and I offered to examine for them some urine, prepared by concentration with pure hydrochloric acid. The urine was

Mr Wooler, after passing much of his early life in a mercantile capacity in various parts of the world, and last of all in the East Indies, settled at Burdon, near Darlington, about seven years ago. He had been married eighteen years, but had no family. His household consisted of only one servant, or sometimes two, and a gardener, who, however, did not live in the house. During the last illness of Mrs Wooler there was only one servant; nor had she ever the benefit of a nurse, because it appears she disliked such attendance. There was no want of proof that at all times, down almost to her very death, her husband and she lived, to all appearance, on terms of sincere, reciprocal affection; and neither on the trial, nor at the two previous inquiries, was there a tittle of evidence produced to the contrary. Not a shadow of proof appeared that the husband could have any motive for getting rid of his wife. Nevertheless, she indubitably died of poisoning with arsenic, frequently administered.

In face of these two great defects in the usual moral proof in charges of murder by poison, it is not easy to see how any circumstances of serious suspicion should arise against a husband. But so it was in this case.

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sent, and I found arsenic in it unequivocally; but before I could intimate the result, the lady died. Meanwhile, fresh symptoms had rendered the nature of the case more clear; and at her death the suspicions of her medical attendants were made known, and were at once amply confirmed by the morbid appearances, by my analysis of the urine, and by the detection of arsenic in the liver and other organs after death.

At the coroner's inquest, amidst other irrelevant matter, an episode arose in the shape of a criticism on the conduct of the medical attendants, for not having divulged their suspicions as soon as they formed them. These gentlemen defended themselves by stating that they acted by advice of an authority in medical jurisprudence, whom they had consulted; and after some resistance, on the ground of a promise not to divulge his name, they were compelled to make known that they had referred to me. It was then urged that my evidence should be produced, and some unnecessary altercation arose on that subject.

My reason for desiring that no notice should be taken of my having given advice in the case was simply, that I have for some years given up the charge of medico-legal inquiries at a distance from home; that although I frequently give advice on such cases, when asked to do so by my medical friends and others at a distance, I give it on the condition that I shall not be involved as a witness; and that, if I am to run the risk of becoming a witness by these gratuitous services to my professional brethren, I must cease to render them, because absence in distant places, on such account, is incompatible with my professional and professorial duties at home.

As Mr Wooler's legal advisers, however, seemed to think there was some mystery in my connection with the case, I wrote to one of them, that, if my evidence at the inquiry before the magistrates was thought to be possibly serviceable to Mr Wooler's cause, I should interpose no difficulty in the way of my appearing; and I made the same offer to the medical gentlemen, in the event of my appearance being desirable for their justification or for the ends of justice. I was not then summoned. But eventually I was cited as a witness for the prosecution on the trial, because I was the only person who had obtained positive evidence of the presence of arsenic in anything proceeding from the body of the patient during life.

For at least five weeks, no one but the prisoner and the female servant, had such access to the deceased as was necessary to carry on a system of repeated and protracted poisoning. During that period, indeed, her niece, a girl of fifteen, lived in the house for a short time, and a female friend from the neighbourhood also visited her; but their opportunities were not adequate, and every other circumstance rendered it impossible to suspect them. Subsequently, other friends tended her in her illness; but, before they did so, the affection of which the deceased died had been completely established. Against the servant not one iota of suspicion attaches from the evidence. Against the prisoner, the only other party who had all along free enough access, there was the evidence of sundry rather contradictory and otherwise suspicious acts, the concurrence of which seemed extraordinary on the supposition of his innocence, but each of which was capable of being individually explained away without any very violent assumption.

Of these, it is unnecessary to notice here any, except a few which appertain directly or indirectly, to the medical part of the evidence. In the first place, then, besides being constantly with his wife, and administering, or helping to administer, food, drink, and medicine, on numerous occasions—no extraordinary proceeding on the part of an affectionate husband—he likewise frequently administered, or aided in administering, nutritive and astringent injections, a species of service which every medical man must allow it to be very unusual for a non-professional husband to render to his wife. Secondly, in one of two syringes used for that purpose, on repeated occasions, arsenic was subsequently detected by Dr Taylor; but the syringe had lain for a good many days in an open closet, while in the custody of a police officer. Thirdly, the only occasion, on which articles administered by the mouth remained for a continuity of time on her stomach, was during a period of one day, when he was absent from home. Fourthly, he showed, in the opinion of his wife's medical attendants, an unusual acquaintance with the properties of poisions, for one who had no professional reason for making himself acquainted with that subject. Fifthly, he possessed a rather numerous collection of medicines, several of which are also energetic poisons, such as tincture of henbane, bimeconate of morphia, ergot of rye, veratria, strychnia, and Fowler's arsenical solution. It appeared, however, that several of these had been obtained in all probability at Bombay and the Cape of Good Hope, and therefore many years ago; and no evidence was produced of the recent purchase of either arsenic or any other poisonous substance. As to the arsenical solution, it was contained in a small ounce phial, in which there remained about one drachm and a half; so that, supposing the bottle had been once full, only three grains and a quarter had disappeared, a quantity too small to produce a protracted arsenical poisoning—not more, in fact, than would suffice for a medicinal course of arsenic of twenty-six days' duration. Sixthly and lastly, the bottle of arsenical solution, which had been seen by two of the medical witnesses, during the life of the lady, in a basket of various medicines and poisons, was the only one which was found to have disappeared from the basket, when sought for by the authorities after her death. But its disappearance was not traced even presumptively to the prisoner. The functionaries of Darlington were plainly remiss in following up the fate of this bottle.

It is undoubtedly very extraordinary how these and other grounds of suspicion of a more purely general nature should have concurred to attach suspicion against an affectionate husband, who had neither interest nor other motive for desiring the death of his wife. But in face of these two defects of evidence—a motive, and alienation between the parties—even although the grounds of suspicion had really been stronger, no impartial jury, I apprehend, could have brought in any other verdict than the one actually delivered.

There is perhaps no trial on record, in which the general or moral evidence is so contradictory. Not so with the medical evidence of death by arsenical poisoning.

It is now much the fashion with lawyers, whether civil or criminal, to rail, both in season and out of season, at medical evidence. A newspaper critic, on the present occasion has indeed, gone so far as to state, not without some show of reason, that law seems to have sworn war against physic, for some time past, in this country. The accusation is in some measure supported by the fact, that not one word of approbation was bestowed, throughout this long trial, on the most elaborate, difficult, and conclusive medical investigation and evidence, hitherto produced upon any criminal trial in Britain. The proof of poisoning by arsenic was so perfect, in very nice and difficult circumstances, that even the prisoner's counsel evidently surrendered that point, without attempt at dispute, from the very beginning. How different was the case, only five-and-twenty years ago, when the main efforts of counsel were invariably directed to deny and disprove the poisoning!

The history of the poor lady's sad illness is one of the most instructive cases of poisoning with arsenic, that has ever been published; and well deserves record in medical literature, were it for no other reason. But it possesses a rare interest, also, inasmuch as it shows, in these days of growing refinement in crime, that the secret poisoner is not to expect to produce, by slow poisoning with arsenic, the obscure pining, the imperceptible progress, and nameless death, which, in the age of Secret Poisoning, arsenic was supposed to occasion in the hands of the skilful; but that, on the contrary, he will in all probability excite the most characteristic and aggravated symptoms which that poison is known to create; that he may, in short, produce a typical case of arsenical poisoning.

It appears that, in the beginning of May, Mrs Wooler, a rather delicate woman of 38 years of age, was attacked with pain and vomiting soon after an ordinary dinner. The kind of symptoms that ensued for a week, were not particularly inquired into at the trial. The servant, the only person to supply direct evidence on the subject, gave no farther information than that she continued ill, but did not vomit again.[1] On the 8th of May Dr Jackson was sent for, as her medical attendant. He found her labouring under symptoms of gastro-intestinal irritation, and treated her, accordingly, with light bitters and bismuth. She had a sickly look; a small, frequent pulse; flatulence; a frequent slight tickling cough, or rather hawking, without expectoration; an occasional discharge of mucus from the bowels, accompanied with tenesmus and griping, and of some days' standing; redness of the eyelids and lining membrane of the nostrils; loss of appetite, and great failure of strength. In three or four days more, there was anxiety, restlessness at night, and greater weakness; increased griping, tenesmus, and mucus discharge, now also streaked with blood; dryness or tightness in the throat, with hoarseness of the voice; and she had again begun to vomit. The treatment, at this time, consisted principally of bismuth as a sedative, hydrocyanic acid to allay vomiting, and astringent opiate injections to check diarrhœa. Mr Henzell, Dr Jackson's assistant, first saw her on the 16th May, and also found her labouring under these symptoms.

The same symptoms continued, with little change, except a progressive exacerbation, in spite of appropriate treatment, till 28th May, when the mouth was ascertained to be sore, and the throat was so uneasy as to impede swallowing. Two days later the stools, previously bilious, assumed a fatty appearance owing to the presence of pus, as proved by microscopial examination. The vomiting and purging were now worse than ever, and the vomiting seldom occurred except after the taking of food or medicine. The tongue was red and fiery, the mouth and lips excoriated, the anxiety and restlessness very great.

On the 4th June there were the same symptoms, and a farther aggravation of them; but the stethoscope on this day, also betrayed slight tubercular infiltration at the summit of both lungs, most advanced in the right side; indolent, however, in both. Naturally tuberculosis, affecting the abdomen as well as the chest, was for a time suspected, and cod-liver oil, with opiate injections, constituted the treatment. Mr Henzell, however, on this day, " began to conjecture that the symptoms he saw were such as slow arsenical poisoning might produce."

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[1] I take the subsequent history chiefly from the evidence; and, where that is defective, as it often was, I complete the narrative from the case sent for my opinion by Mr Henzell, in name of the three medical gentlemen, on 22d June. This case Mr Henzell was not allowed to refer to on the trial; because the rule of law, which only admits notes in evidence provided they have been taken at the time the written facts occurred, is still ignorantly, in my opinion, and injuriously, applied to scientific evidence, to which, in principle, it is not justly applicable. In medical literature, we are luckily bound by no such punctilio. Neither law nor judge will ever convince us that a written case, drawn up within a few days of the occurrences, is not far better evidence than a *viva voce* account, even upon oath, of recollections of minute facts six months old.

On the 8th June Dr Haslewood was called into consultation. The conjunctivæ were much injected. The nostrils were very red. The mouth and lips were much excoriated and a source of great distress. The tongue was also red and sore. There was uneasiness in the gullet, some sore throat, a tickling irritation at the top of the windpipe, and hoarseness. The anus was excoriated. The patient complained of pain in the stomach, urgent thirst, want of appetite, and frequent vomiting; of tenesmus, griping, and diarrhœa; of hiccup; of intense anxiety, restlessness, and general distress. The pulse was usually above 130, and feeble. The stools had been ascertained, by the microscope, to contain pus-globules and blood-discs for three days before. On the 10th June, the urine, which was scanty, high-coloured, and high in density, was ascertained to be albuminous, and to deposit blood-discs and casts of the uriniferous tubes of the kidneys. On the 13th June the face and arms presented an eruption, which gradually put on the character of eczema. The symptoms otherwise continued much the same; and still, as from the first, they presented a paroxysmal tendency in point of severity.

On or about the 17th June, the three medical gentlemen—who had all independently begun, for some days before, to entertain a lurking idea that the lady might be labouring under the effects of arsenic, frequently administered in small doses—came to an understanding with one another, and agreed that there was such ground for suspicion of poisoning with arsenic, as to call upon them to regulate their treatment accordingly. This suspicion, originally deduced from the symptoms, was strengthened by an examination of the urine on the 14th and subsequent days, by Mr Hensell; who, by means of Reinsch's process, obtained upon copper, a metallic deposit, which, however, he could not satisfactorily make out at that time to be arsenic. The ammonio-citrate of iron freely administered, first by injection, and afterwards also by the mouth, as an antidote, seemed for a time to be of service in mitigating the symptoms. The pulse which had reached 160, fell towards the 20th to 120. But the countenance appeared more sunk, and the restlessness was excessive in spite of frequent doses of opium.

On the 23d she became again worse; the restlessness and weakness were extreme; the pulse feeble and intermitting; the edge of the tongue ulcerated, and the palate covered with papulæ or pustules; the hands cold and moist; the vomiting severe; the diarrhœa less so. On this day the patient first mentioned to her attendants a sense of stiffness, numbness and tingling, which she had felt in the arms for two or three days before. Prior to the 23d the urine had presented very much the character formerly described, but on this day what was presented for examination abounded in oxalate of lime crystals, and showed neither albumen, blood, nor tube-casts. This was obviously a different urine substituted accidentally or intentionally. Next day it presented its usual character, except that the albumen had disappeared.—In that of the 22d I found arsenic unequivocally by Berzelius' modification of Marsh's process.

On the 26th, all the symptoms got worse, especially the vomiting and the tingling and numbness of the hands. The pulse was 144 or 150, and very small and weak. She was evidently sinking. In the subsequent night, she was seized with paroxysms of tetanic spasm, gradually increasing in severity and duration, and at length becoming almost incessant. At half-past ten on the morning of the 27th she died, retaining possession of her mental faculties to the last.

I have withheld from this narrative the account of the treatment. Various sedatives, astringents, and tonics, were tried. The only important point requiring notice here respecting these remedies, was that they all failed to procure any lasting relief, and in general even a temporary amelioration.

The body was examined on the morning of the day after death. There was slight tubercular infiltration in the apex of each lung, and, in the left, a small cavity. The trachea and large bronchial tubes were much injected, and red. The heart was small, pale, otherwise healthy. The liver was slightly enlarged, saffron-coloured, friable, fatty. The interior of the stomach was slightly vascular in its greater curvature; but the smaller curvature presented groups of small vessels gorged with blood, so numerous at its larger end, as to render the redness almost universal, and like a sheet of blood under the mucous coat,—which was soft and friable. The duodenum was vascular internally, and full of black matter. The jejunum was much in the same state. The ileum was redder still, and throughout the lower third denuded of its mucous coat in many patches, varying in size from a shilling to a crown, and here and there involving its whole circumference. At the latter points the peritoneal coat was bare, thin, and very easily torn. Many mesenteric glands were prominent and black. The colon was everywhere vascular; numerous small ulcers pierced the mucous coat in the ascending and transverse portions; and the rectum was similarly but less extensively affected. The pancreas was somewhat vascular, the kidneys congested, the spleen congested, the uterus healthy.

Mr Henzell found arsenic in the liver. Dr Taylor of Guy's Hospital, London, found it also in the liver, and in the heart, the lungs, the intestines, the rectum separately, and in a dirty bloody liquid from the peritoneal sac. Mr Richardson, an analytical chemist of Newcastle, found it in a mass of viscera, consisting of portions of the stomach, liver, spleen, and kidneys.

All the medical witnesses agreed that the lady's illness and death had been caused by arsenic given repeatedly. I was asked whether the symptoms could have been produced by natural disease, and replied that "I could not venture to assign a limit to the liability of the human body to a combination of diseases which might produce similar symptoms; but that I had never either seen, or read, or heard of such a case as this, unless from the effects of arsenic." In fact, it is scarcely possible to imagine a more graphic or typical case—irritation or inflammation of the conjunctivæ—of the nostrils—of the mouth and throat—of the glottis and trachea—of the stomach—of the small and great intestines—of the kidneys—the eczematous eruption—the excessive prostration, restlessness, and anxiety—and the remarkable nervous affections towards the close—numbness, stiffness, and tingling of the arms—ushering in tetanic spasms of the muscles before death.

(*To be continued.*)

ARTICLE V.—*A Few Remarks on Dilution as a Principle in Therapeutics.* By BENJ. BELL, F.R.C.S.E.

(*Read before the Medico-Chirurgical Society.*)

THE following observations are not supposed to contain much that is new; because it is probable that substantially they are both recognised and carried out in practice by many of my professional brethren; but, I venture to offer them, in the belief that it is often very useful to give a definite written shape to notions and opinions which would be otherwise vague and undefined. We are thus enabled to test their soundness more thoroughly, and to elicit, it may be, the views and experience of others in regard to them. Without farther apology or preamble, I venture to suggest, that we are apt to err more or less when prescribing certain remedies, those especially of a metallic nature, in not taking care to have them sufficiently diluted. Our purpose should be to gain ready entrance for them into the circulating blood, and, therefore, the more bland the fluid that we present, the more kindly will it be assimilated and absorbed. We have no reason to expect that many inorganic substances will be taken up by the capillary vessels, unless in very small quantities at a time; for absorption, as is well known, is regulated to a considerable extent by the wants of the whole system. Let us consider how this applies, for example, to the preparations of iron. Chemists inform us, that in one thousand grains of human blood, there are about two grains and one-third of hæmatosine, and that the latter contains from six to eight per cent. of iron. From these data, and estimating the entire blood of the adult body at twenty-five pounds, we can hardly suppose that there is much more than thirty grains of iron in the whole circulating fluid. In cases of anæmia, this small proportion of iron is sensibly diminished; but a very few grains of iron, administered in a kindly manner, and, as it were, coaxed into the system, will amply supply the deficiency.

Surely, then, it is unreasonable, to say the least of it, to prescribe large doses of iron, or to pour it in, as some express it, when the real demands of the economy may be so easily supplied. Evidently a large proportion of the medicine swallowed by our patient is superfluous, and, not improbably, therefore, in some measure hurtful. Our doses, then, reasoning *à priori*, ought to be small in quantity, and amply diluted.

But is not the same lesson taught, in the most emphatic manner, by the chalybeate medicines ready prepared for our use in the great laboratories of nature? It is well known, I believe, that few chalybeate springs are more richly charged with iron than a single grain in sixteen ounces, while the majority of them contain a still smaller proportion. The famous spring at Pyrmont,[1] for example, has about half a grain in the pint of water, and that at Tunbridge Wells, about one-third of a grain. In the Hartfell chalybeate, near Moffat, the proportion of iron, as recently shown by Mr John Macadam, is much the same as at Tunbridge; and, indeed, there are few exceptions to this apparent rule, among springs celebrated for their strength-giving qualities.

In another class of medicinal springs, the active ingredient is met with under the same condition of remarkable dilution. We are told, for instance, by competent authorities, that the bromine and iodine springs of Kreuznach contain barely one-third of a grain of the bromide of magnesium or sodium in sixteen ounces of water, and that the iodides exist in much smaller proportions.[2] But the

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[1] According to Dr Sutro the following is the composition of the Trinkquelle spring :—

	Grains.
Sulphate of Lime, . . .	7·22
„ Magnesia, . . .	2·69
„ Soda, . . .	2·14
Carbonate of Lime, . . .	5·98
„ Magnesia, . .	·32
„ Iron, . . .	·49
Chloride of Magnesium, . .	1·12
Silica, ...	·49
Total, . . .	20·45
	Cubic Inches.
Carbonic Acid, . . .	44·52

[2] According to Professor Löwig of Zurich, the Elizabeth spring contains the following ingredients :—

	Grains.
Chloride of Sodium, . . .	72·88
„ Calcium, . . .	13·38
„ Magnesium, . .	4·07
„ Potassium, . .	·62
„ Lithium, . . .	·61
Bromide of Magnesium, . .	·27
Iodide of Magnesium, . . .	·03
Carbonate of Lime, . . .	1·69
„ Baryta, . . .	·01

virtue of these waters in many glandular swellings and other forms of scrofulous disease, is undoubted; and, therefore, we may take a useful hint from these remedies, so wisely compounded by the hand of nature, and learn to dispense our metallic preparations both in smaller doses and in a state of greater dilution.

Of late years, I have been influenced a good deal by this conviction, and have seen reason to believe that all the benefit derivable from certain metals, as remedial agents, may be secured by comparatively small doses, provided that they are sufficiently diluted. I have seldom trusted to what could be called very minute doses; but so far as my observations go, I have a strong impression that, within certain limits, we do not increase the efficacy of such medicines by adding to the quantity prescribed. For example, eight or ten drops of the muriated tincture of iron in a large glassful of water, will, if useful at all, do as much good to our patient, as double or treble the quantity. And a similar remark applies, in my opinion, to the iodide or bromide of potassium, a single grain, or at most two of either, in a glass of water, being capable of effecting all the benefit of larger doses. We have already seen that the natural springs of world-wide celebrity present these ingredients in the proportion of one-third of a grain to sixteen ounces, and therefore we shall probably find, upon more extended trial, that corresponding doses of our pharmaceutical preparations, similarly diluted, will answer every purpose.

It may be observed, in passing, that although no strictly analogous argument, furnished by the chemical composition of natural springs, can be urged in regard to the administration of antimony, the principle of dilution is probably no less applicable to that important remedy. Without venturing to speak very dogmatically on the subject, I have a pretty strong conviction that we both increase its remedial power and lessen its tendency to cause sickness by diluting our antimonial solution. Many practitioners suppose, that without the production of nausea, we miss our object in subduing pulmonary inflammation, the principal disease for which that metal is prescribed; but I doubt the soundness of this view, and am inclined to think that every object may be gained without sickening our patient, just as iron and mercury can produce *their* curative effects without the former causing headache, or the latter salivation. Our aim should be to bring the antimonial into contact with the capillaries of the inflamed part, and this, probably, will be best promoted by presenting it in a form fit for immediate absorption into the circulating fluid. When this is attended to, I find it seldom

Magnesia, ...	·10
Oxide of Iron, ...	·15
Phosphate of Alumina, . .	·02
Silica, ...	·12
Total, .	95·05

necessary to give more than the sixteenth or twenty-fourth part of a grain of tartrate of antimony in successive doses.

Another *a priori* argument, in favour of this practice, may be adduced. Unless a metallic medicine be administered in a state of proper dilution, *that condition* will be secured by the secretion of more or less fluid within the stomach itself, in order that the foreign matter may be in a fit state for being taken up and appropriated by the blood. But it is evidently desirable that this secreting process should be kept within as narrow bounds as possible, in every case standing in need of tonic remedies, and, therefore, if it can be rendered unnecessary, even in part, by previous dilution *ab extra*, we secure an advantage for our patient. If, however, we still adhere to large doses of the active ingredient, it is obvious that, in order to effect the necessary dilution, we must increase the entire quantity of liquid so enormously as to oppress the stomach, and derange the digestive process.

Other advantages of moderate doses, largely diluted, taking their efficacy for granted, will be readily admitted; for, besides being less hurtful, it may be, to the teeth, they are also less unpalatable and better adapted on that very account for being taken and digested with the food, a point, the importance of which has been long fully recognised by practical men. That this last advantage is not imaginary, may be gathered from our familiar experience regarding the chloride of sodium. Mixed with the food at meals, although useful in helping digestion, it has no aperient action; but the same quantity dissolved in water, and swallowed when the stomach is empty, before breakfast, will almost certainly open the bowels. In the former case, it is absorbed gradually in company with the food; in the latter, being presented too abruptly and strongly to the fastidious capillaries of the portal system, it is rejected by them, and hurried onwards through the canal, from convolution to convolution, and hence its qualifications as a purgative. But, if the solution be a concentrated one, it will probably never reach the bowels, but act as an emetic, and be rejected at once from the stomach. And cases are met with, in the annals of toxicology, where death itself was occasioned by large and irritating doses of common salt. Supposing it, however, to act as a purgative, the explanation of its action given seems preferable to the *endosmosis* theory, which appears to be too mechanical, and ignores entirely the vital affinities and endowments so conspicuous in the living body. We have supposed the solution of chloride of sodium to be moderately concentrated, like sea-water, or in the proportion of about a drachm to four ounces; but, if we double the allowance of water, we shall probably find that the action is no longer purgative, but diuretic. The salt has entered the circulation, and will be eliminated by the kidney.

It may be objected, perhaps, to the principle we are advocating, that it takes for granted that the whole of the medicine swallowed is absorbed, and received into the blood, whereas, allowance should be made for a great part of it passing through the alimentary canal unchanged, and more, therefore, ought to be administered than we can expect the system to appropriate. That this superfluity does exist, when large doses are given, we have already suggested, and also that it is probably a source of injury to the patient; but the likelihood of such being the case, is obviously much less when the dose is small and well diluted. Moreover, we are very apt, I suspect, to overestimate the quantity of any foreign substance which is needed, in order to act upon the human body.

I have repeatedly seen so small a dose as the eighth of a grain of extract of belladonna taken into the stomach of a young person, cause full dilatation of the pupil. Now, if we only consider how extremely minute must be the portion even of this very small dose, when circulating through the blood-vessels, which could come into contact with the nerves of the iris, we may form some conception of the susceptibility and delicacy of our frame. To take another illustration, let us consider the remarkable efficacy of the muriated tincture of iron in erysipelas, or in acute desquamation of the *tubuli uriniferi* following scarlet fever. An adult is labouring under the former of these complaints, with much febrile disturbance, as indicated both by the hot dry skin and the frequent bounding pulse; we administer ten drops of the tincture every two hours, and after two or three doses, as I have often seen, the symptoms give way, the skin becoming moist and cool, the pulse slow and soft. A *few* grains of iron, at the very most, have mingled with the circulating blood, and of these a mere fractional portion has reached the congested capillaries of the inflamed region, and occasioned the favourable change, and in this way, a comparatively small dose of a substance confessedly foreign to the system, comes to fulfil the purpose we have in view, with all the efficiency of a larger quantity.[1]

A boy of ten years, we shall suppose, who has recently passed through an attack of scarlet-fever, is observed to have œdema of the eyelids, a furred tongue, and full febrile pulse. His urine is of a dingy colour; it deposits a dark sediment, and is scanty and albuminous. Five drops of the tincture of iron in a glass of water, are administered every four hours; a speedy improvement commences, and in two, or perhaps three days, the symptoms are entirely gone.

Such facts, besides enforcing the principle we have been inculcating, should teach us to deal tenderly at all times with an organization so finely constituted, and to administer our remedies under a more settled conviction that, if potent for good at the right time, they may also be potent for evil, when the case and the occasion are not favourable.

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[1] We assume that the solutions of iron, atropine, or antimony, *do* enter the circulation, and reach the several regions of the capillary system, where their special power is felt. No other explanation of the observed phenomena seems to be so reasonable, or so consistent, with the present state of our knowledge. Does any one doubt that the capillaries of an inflamed iris are acted upon directly by the mercury which has reached them through the blood, and are we not almost shut up to the belief, that our solutions of iron, or of antimony, are respectively brought into contact with the congested capillaries of the skin, the kidney, and the lung?

One may express himself in this manner, without verging in the very least, towards the credulity of those persons who profess their faith in the power of infinitesimal doses. It is one thing to recommend half a grain in preference to five, and a very different thing to stand up, with unabashed countenance, for the millionth or billionth part of a grain. The human mind is baffled in forming even a conception of such infinitesimal quantities; and, therefore, they may be placed in a category by themselves, for the use of those who take pleasure in believing everything that ordinary people are compelled to doubt. But is there no truth in the allegation, that some of our large doses of remedies, intended to enter the circulation and mingle with the blood, must startle and stagger many reverential students of the human frame and functions, and so create, it may be, a hurtful reaction in favour of Homœopathy, and other kindred eccentricities?

I would venture to suggest, that some topical appliances—those especially of a discutient nature—may be rendered more efficacious and useful, by attending to the same principle of ample dilution. For example, the most efficient mode by far in my experience, of employing iodine locally, is a solution, consisting of two grains of iodide of potassium and one of iodine, in an English pint of water. It must be used warm, as a fomentation to the affected part, by means of a sponge, twice or thrice a-day, for five or ten minutes at a time. In cases of glandular tumour and of fibrinous exudation into the cellular tissue; in chronic enlargement of the testicle or epididymis; in short, in all that class of disorders, where iodine or mercurial ointment would seem to be indicated, I have often found it remarkably efficacious. The warmth of the application renders it more agreeable to most patients, than if it were cold or unctuous, and, at the same time probably, increases its power by relaxing the pores, and so favouring absorption. It seems to be much preferable to the tincture of iodine painted upon the surface—a favourite remedy with many. The latter certainly does good in some cases, but we may doubt, I think, if it produces its beneficial effects in the manner usually attributed to iodine and its compounds. It is a strong stimulating fluid, and sometimes occasions a good deal of local suffering; so that, when attended by favourable results, it probably resembles in its action a common blister, or the croton oil ointment, and relieves inward congestion or chronic inflammation *indirectly*, by its power as a counter-irritant, and not *directly*, by hastening the process of absorption. The distinction is not unimportant; because some swellings, of inflammatory origin, may reasonably be expected to give way under a system of counter-irritation; while other growths, of a slower and colder constitution, will be more amenable to a treatment less active and heroic.

Another illustration of the same principle seems to be afforded by the outward uses of croton oil. When employed in a form tolerably concentrated, it induces, as we all know, an eruption of minute vesicles; but when mixed with a large proportion of olive oil, and rubbed over an extensive surface, such as the abdomen, it sometimes shows its power as a purgative, in the most unequivocal manner. One case in particular, that I attended with the late Dr Thatcher, occurs to me, in which this treatment was eminently successful. A young gentleman seemed to be dying of obstruction in the bowels. As all the ordinary means of relief had been exhausted, and circumstances forbade the farther use of internal remedies, a liniment, composed of one part of croton oil and twenty-four of mingled olive and camphorated oil, was used as an embrocation to the belly; and very speedily, and in consequence, as I believed at the time, the peristaltic action downwards was restored, and the obstruction overcome. Of course, we may have mistaken in this, as in other cases, the *post* for the *propter hoc;* but such facts seem to suggest the propriety and desirableness of new experiments in the same direction.

The spiritus terebinthinæ is another local remedy which we may probably employ with advantage, in a less stimulating shape than we are in the habit of doing. This has been suggested to my mind by witnessing the beneficial effects of small doses of turpentine in certain forms of iritis, and in rheumatic ophthalmia. In exercising these curative effects upon textures so remote from the stomach, the medicine must be supposed to enter the vascular system, and to modify the blood by stimulating one or more of the organs of excretion;[1] and it is reasonable to infer, therefore, that the well-known remedial power and efficacy of terebinthinate embrocations in certain chronic forms of muscular rheumatism and neuralgia, *may* depend very much upon a similar therapeutic action. And on this supposition, we should take care that the local remedy is not presented in a form too stimulating, our object being, not so much to cause counter-irritation by it, as to secure its absorption by the integuments covering the seat of pain.

CASE BOOK.

XI.—*Case of Hæmorrhagic Diathesis*, in which the bleeding from the gum was arrested only by the Extraction of the Tooth in its immediate vicinity. By John R. Miller, M.D., H.E.I.C.S.

(*Read before the Medico-Chirurgical Society.*)

It is frequently the lot of medical men to witness sufferings in their fellow-creatures, which, however much they may endeavour to alleviate, they cannot but feel are removed beyond their reach, and are not to be influenced in their progress and termination by the most able and judicious measures for their removal. An illustration of this we see in some cases of the Hæmorrhagic Diathesis; a condition of body however, which, fortunately we do not often meet with; for, were it otherwise, we should have more frequent occasion to lament that, in common with one or two other maladies, to which human flesh is heir, our means of cure are sadly at fault.

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[1] The property which turpentine possesses, of promoting the excretion of lithic acid, seems to be well ascertained.

To stand by, and watch, hour after hour, the blood of your patient slowly but surely draining away, while you have vainly had recourse to every expedient which has at various times been recommended by others in similar trying circumstances—is a position of no common difficulty and anxiety. And, with the view of aiding others in charge of such cases, to decide as to the most satisfactory line of treatment, we are bound to communicate cases, not merely of successful practice, but, what is often perhaps of still greater benefit, a faithful record of the instances in which, after having followed the course laid down by those most entitled to consideration, we have either failed entirely or been only partially successful.

Thus, greater service has been rendered by the publication, from time to time, of the several cases in which the extraction of a tooth has been followed by a fatal hæmorrhage, than if the writers—obeying a natural law in our constitution—had contented themselves instead, with communicating to the medical world the instances where everything had succeeded in conformity with their best-laid plans, and most sanguine expectations. A man's attention is not so much rivetted, or his judgment exercised, by a dozen cases of ordinary routine, as it is by one where something unusual has occurred, either through some new feature in the case, or owing to neglect or mismanagement in the treatment. Especially is this observed, if death has stepped in, and placed his hand on the brow of any, on whom least of all his power was to be dreaded. Men's minds then set to work: they criticise each step in detail; and their talents and ingenuity are brought into requisition to point out—the circumstances which have been overlooked—the omissions which have occurred—and the errors that have been committed, and to devise plans, and furnish a chart, which it is hoped will prove sufficient to steer them safely through the difficulties which may beset any similar case in future.

Such was seen to be the result when, in the year 1842, Dr Hay's paper on "Fatal Hæmorrhage, following Extraction of a Tooth," appeared,[1] which was succeeded, in a month or two afterwards, by "Two Cases of Hæmorrhagic Diathesis," communicated by Dr James Allan.[2]

But for these, we should not probably have had the very able article by Professor Miller, on the "Hæmorrhagic Diathesis,"[1]—a paper, in which the author enters so fully into the pathology of that condition, and gives especially such directions as regards treatment, that it would almost seem no one could now feel himself much at a loss how to deal with cases of the kind with so excellent a treatise as this one for his guidance. And it was, doubtless, owing to Dr Hay's report that we are indebted to both Drs Roberts[2] and Reid,[3] for their very ingenious mechanical contrivances, for keeping up a steady and continued pressure on the bleeding socket.

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[1] *Lond. and Edin. Monthly Journal*, March 1842.

[2] *Lond. and Edin. Monthly Journal*, June 1842.

I need make no apology, therefore, for offering a few remarks on a case of spontaneous hæmorrhage, which has lately come under my notice, and shall only be glad if a consideration of the difficulties which presented themselves in the way of carrying out the measures best fitted for arresting the hæmorrhage, may be of service to any one having a case of the kind on their hands:—

History. The patient, a gentleman of middle age, of a pale, anæmic habit, has been subject, from his earliest years, to occasional violent bleedings, which have been arrested always with great difficulty. In his boyhood, it took the form of Epistaxis; in later years that of the hæmorrhoidal flux. His life, at one time, was considerably endangered, owing to uncontrollable hæmorrhage, resulting from a few leech-bites; at another, from the removal of a tooth; and so alarming were the consquences of this latter operation, that he was solemnly cautioned by the medical men in attendance, that on no account must he ever consent to have another extracted.

Commencement of Hæmorrhage. On the 25th of July last, while residing in the country, after a greater amount of exertion than usual, he commenced, at 11 P.M. to spit blood; and upon examination it was found to proceed from around the neck of the first lower molar on the right side.

Condition of Tooth and Gums. The tooth was very loose, owing to absorption of the alveolar process, and the free edge of the gum embracing the tooth, showed an ash-coloured line of ulceration, from which the blood was seen to issue. The gums were in a very relaxed condition, but did not present the smallest scorbutic appearance.

Treatment—Astringents. At first astringent lotions of myrrh, alum, catechu, were employed; then the part was touched with the tincture of the muriate of iron, and a purgative of compound powder of jalap was administered, followed by small doses of sulphuric acid; after which the acetate of lead and opium pill was had recourse to.

Recurrence of Hæmorrhage. In seven hours from its commencement the bleeding stopped, but broke out again at 1 P.M. (26th). Similar measures were again employed, but without success; and the bleeding, which was considerable, having now continued for other five hours, the patient was seen by Dr Brown of Melrose, who, of course, at once recommended the extraction of the tooth; but, on learning the hæmorrhagic constitution of the patient, he agreed with me that this plan could not be thought of.

Gallic Acid. Creosote. Having found gallic acid of great service in cases of passive hæmorrhage, he thought it might be tried here with advantage. He also touched the part with creosote, and failing good effects from this, recommended the mouth to be washed with Tinct. of Mur. of Iron, largely diluted.

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[1] *Lond. and Edin. Monthly Journal*, July 1842.

[2] *Lond. and Edin. Monthly Journal*, May 1846.

[3] *Lond. and Edin. Monthly Journal*, Jan. 1847.

Ice. Iron Internally.

The creosote produced no beneficial results; the bleeding continued unchecked for eight hours more, when a temporary cessation occurred (2 A.M.); but only to be renewed at 1 P.M. of the same day. We now tried ice externally, by means of a bladder, and the nourishment—which was chiefly strong beef tea—was given cold. Iron internally was added to the other remedies. But the hæmorrhage was in no way influenced for the next fifteen hours, when it suddenly ceased on the 28th, 4 A.M.

Third Cessation of Hæmorrhage.

Amount of Blood Lost.

Condition of Patient.

Pulse.

Matters were now assuming a very serious aspect. As near as we could calculate—making due allowance for the admixture of saliva and different lotions he was using—the patient had already lost at the rate of about ℥j. of blood for every three minutes during which the bleeding had lasted, and that, for the thirty-five hours of actual hæmorrhage since the night of the 25th, gave between five and six pounds of blood. It was not, however, consequent upon the amount of blood lost, that grounds for immediate anxiety existed; for, although he was very weak and exhausted, which the want of sleep and proper nourishment had increased, yet the pulse indicated nothing hæmorrhagic, but was of moderate fulness, slow, easily compressible. Could we have assured ourselves of no further hæmorrhage, a few days would have sufficed to restore the patient; but, with the experience we had already had, we held no guarantee that the blood might not at any moment burst out afresh; and we could not but feel how impotent the measures hitherto employed had been, and that nothing further we could suggest gave promise of better success in the event of its recurrence.

Under these circumstances, therefore, it was considered desirable to call in further advice.

Consultation.

Dr Begbie and Mr Nasmyth, who now saw the case, recommended *pressure* with dry lint should the bleeding return, and in the meantime to continue the internal use of the iron. At this stage the gum and neighbouring parts were a good deal swollen and blackened by the tinct. of iron and creosote; coagula were also adherent; the mouth was opened with difficulty, and a satisfactory examination was scarcely now possible, as much from the risk of again inducing hæmorrhage, as from the confused state of the parts.

Fourth Recurrence of Hæmorrhage.

Pressure Employed.

Cessation of Hæmorrhage.

On the evening of the 30th, at 7 P.M., when the sloughs were becoming detached, and the mouth assuming more its natural appearance, blood was again suddenly poured forth. Owing to the second molar being in its place, it could not be clearly made out whether the ulceration, which was visible around the sides and anterior portion of the first molar, extended likewise to the portion of gum lying between. It was probable that it did; at this point, however, pressure was inapplicable. Indeed, consequent upon the extreme mobility of the tooth, and the existence of ulceration—a condition of itself, under ordinary circumstances, unfavourable to the employment of pressure as a means of arresting hæmorrhage—it became a matter of extreme difficulty, as well as uncertainty, the application of pressure at all. It was necessary to employ, not only pressure but counter-pressure, so as to keep the tooth as steady as possible. The forefinger and thumb applied over a roll of lint, close up round the neck of the tooth, seemed the method best calculated for fulfilling the object in view; but the least movement on the part of the patient, or unsteadiness of the operator, must at once displace the relative position of the compress and bleeding surface And so it proved. The lint became frequently soaked with blood, and had to be renewed; but at last, towards morning, the bleeding appeared to be under control, and at 6 A.M. of the 31st it ceased altogether, the lint remaining *in situ*.

Fifth Recurrence of Hæmorrhage.

Hopes were now entertained that the hæmorrhage was at length combated; but these were soon doomed to be disappointed, for at 11 P.M. the same evening, it recommenced as profusely as ever; and although fresh compresses were re-adjusted again and again, and the pressure sedulously maintained, it not only produced no effect in checking the flow, but seemed even to increase it. It was therefore laid aside, and the former measures resorted to. The bleeding, after having lasted nine hours, ceased, as on previous occasions, spontaneously.

Condition of Patient.

It was now evident that the patient could not sustain, for many days longer, such a continuous drain on his system. It was like a man living on his capital, with no prospect of further supply sufficient to meet his daily expenditure. It resolved itself, therefore, into a question of *time*. How long could the patient live while no blood, at least none of a proper quality, was being formed to replace that being daily lost? The patient must sooner or later die by *anœmia*. Other unfavourable symptoms, likewise, were now manifesting themselves. He showed a distaste to all kinds of nourishment; his pulse, though slow, was small, very compressible, and frequently intermitted. He was unable to sleep, and was becoming restless and feverish, for which opiates had been tried, but were found inadmissible.

On considering all the circumstances of the case, it was now proposed by Mr Nasmyth, that if the bleeding returned, the tooth should be removed. This was in the face of the known tendency of the patient, and especially contrary to the warning he had on a former occasion received against *extraction* in particular. But it was now obvious that neither pressure, styptics, local applications, nor internal remedies, were of the slightest avail. The tooth out of the way, pressure could then be more directly applied to the bleeding points, and with some probability of success. The contraction of the gum, likewise, would of itself do some good. At all events, matters could scarcely well be worse than they were at present. An opportunity soon presented itself for putting it into practice.

Sixth recurrence of Hæmorrhage.

Extraction of Tooth.

Seventh recurrence of Hæmorrhage.

Use of Pressure and Matico.

On the morning of the 3d August, the hæmorrhage reappeared as before; the tooth was extracted with the forceps with little difficulty, and the gum lightly compressed. Only the usual amount of bleeding followed, and our astonishment was only equalled by our satisfaction, to find that in a short time it ceased entirely. A recurrence took place after a few hours, but under the use of pressure with the finger, and diluted tincture of matico, the amount was not very considerable. This was the last of it.

And now, naturally enough, my first feeling was one of unqualified regret that this plan had not been adopted at the outset; and there may not be wanting some who may be disposed to censure me for indecision and an error in judgment, for having relinquished this course out of preference to the other. But, it may be well to consider, how easy a matter it is for one who has been forced to make a leap in the dark, and suddenly finds himself on the other side sound and well, to ridicule the hesitation and fears of another who knows not the extent and danger of the gulf yawning at his feet. It would, assuredly, have been a proceeding open to the imputation of unpardonable rashness, had I—with the recorded cases of a fatal termination following the extraction of teeth, in not a few instances, where, as in the present one, the hæmorrhagic constitution prevailed—at once removed this patient's tooth, before having made trial of every other measure which seemed likely to promise relief.

The sequel of the case, I think, shows that the tooth was the exciting cause of the hæmorrhage, and had it been allowed to remain in, the patient must at length have sunk from loss of blood. The appearance of the tooth, one fang of which was roughened and darker than the other, indicated an inflammatory action of the socket, and the portion of the fang which was dead, acted like a foreign body, and kept up the irritation. The danger here, therefore, arose from the *presence* of the tooth, a feature which removes this case entirely from comparison with others, where danger has only commenced *subsequent* to extraction; and were we to lose sight of the antecedents of our patient, we might be led into the error of considering it not one of hæmorrhagic diathesis at all, but merely an illustration of great local disturbance of the capillaries of a particular spot.

EDINBURGH, Oct. 17, 1855.

XII.—*Case of Tobacco Poisoning in a Maniac.* By DAVID SKAE, M.D., F.R.C.S., Physician to the Royal Edinburgh Asylum.

(*Read before the Medico-Chirurgical Society of Edinburgh.*)

F. N., a sailor, æt. 26, was admitted into the Royal Edinburgh Asylum on the 9th October 1855, labouring under acute mania.

Symptoms. On admission he was extremely noisy and violent, vociferating very loudly, and striking at every one who approached him. He was immediately placed in a warm bath (temperature 100°), and after he had been about twenty minutes in the bath, he was observed suddenly to become pale, with lividity of the lips, and all the appearances indicating syncope. He was instantly removed, and placed on a mattress on the floor of his sleeping room. He lay in a state of complete prostration, motionless, and apparently insensible—the only indications of life being a very feeble respiration, and a pulse scarcely perceptible: the pupils were much contracted. In about half an hour he was violently convulsed, the flexor muscles of the upper and lower extremities being rigidly and spasmodically contracted, so as to contract the limbs forcibly against the body. Simultaneously with this convulsive attack, he was purged to a most unusual and extraordinary extent; the whole bed and floor round it being flooded, as it were, with the discharges, which consisted of feculent matter of a dark greenish-brown colour. He was immediately afterwards affected with sickness, and vomited a large quantity of brownish fluid, mixed with fragments of what was immediately recognised, by its colour and appearance, to be *cut cavendish tobacco.* On this being remarked, the attendants stated that he had a pocketful of cut cavendish, and that, on his way to the Asylum, he had his mouth full of it, which they had in vain endeavoured to get him to spit out.

Treatment. The stomach-pump was immediately used, and a considerable quantity of matter similar to what had been vomited, and containing fragments of tobacco, being washed out of the stomach, a pint of strong infusion of coffee was introduced in its place.

Result. For about half an hour after this the symptoms abated, the convulsions ceased, and the pupils dilated. The vomiting and purging then returned, the ejected matters consisting of a mucus fluid tinged with blood. The convulsions recurred, with brief remissions, and increasing intensity, the limbs being, at each attack, rigidly flexed upon the trunk of the body, accompanied with grinding of the teeth, and loud, but apparently unconscious, cries. The pulse could rarely, and then but imperfectly, be felt at the wrist, being extremely feeble and rapid; the action of the heart was feeble and irregular, and its pulsation could with difficulty be made out, amidst the constant contraction and spasms of the flexor muscles on the chest. The pupils were again contracted, and insensible to the stimulus of light. Beef-tea enemata with brandy were administered; stimulants were also introduced into the stomach by means of the stomach-pump. Hot bottles were placed round the body, and mustard sinapisms applied to the abdomen and thighs; but in spite of all the means used, the symptoms persisted, and fatal syncope occurred at 9 P.M., seven hours after the admission of the patient into the Asylum.

History. It appeared that the attack of insanity had taken place on the 4th, and that the symptoms continued to increase up to the period of his admission on the 9th,—being principally sleeplessness, restlessness, destructiveness of dress and furniture, violent gesticulations, and incessant talking and threatening. One of the medical gentleman, who saw him on the morning of the day when he was sent to the Asylum, afterwards stated, that he observed that his mouth was full of tobacco, and that he tried to persuade him to spit it out. It seems probable that he had swallowed a large mouthful of crude tobacco, if not more than one, about the time of his admission, or soon afterwards, as the symptoms of tobacco poisoning began to develop themselves soon after he was placed in the warm bath.

Post-Mortem Appearances. On examination of the body, forty hours after death, complete rigor mortis was observed. The scalp and calvarium presented no peculiarities; the longitudinal sinus of the dura-mater contained fluid blood. The grey matter of the brain was somewhat dark in colour, and the white matter presented numerous punctæ vasculosæ. The grey matter of the cerebellum was very dark, and had a decided red hue. The lateral ventricles contained six drachms of fluid. The pons varolii and medulla oblongata were much injected.

On opening the thorax, both lungs were found partially adherent to the parietes by old adhesions; but in other respects were healthy, containing, however, much fluid blood posteriorly. The heart was empty, small, and contracted, the muscular substance being, at the same time, rather flaccid. The aorta contained dark fluid blood.

On examining the abdomen, the liver was found to be congested, but normal in texture; the gall-bladder contained dark fluid bile; the spleen firm, but pale; the kidneys were much congested, the medullary substance being very dark, and, on section, exuding a good deal of dark fluid blood.

The stomach was distended with beef-tea and mucus fluid. The mucous coat was corrugated, and presented several ecchymosed patches.

The large and small intestines were contracted to a remarkable extent throughout their entire length, and contained not the slightest trace of fecal matter. They presented several abrasions of the mucous membrane, and a considerable quantity of mucus fluid tinged with blood. The mucous membrane of the intestines was everywhere of a deep-red colour, produced, apparently, by imbibition of the blood-stained mucus which they contained. The glands of the mucous coats were enlarged and congested. The veins of the mesentery were distended with dark fluid blood.

The urinary bladder was contracted, and nearly empty.

Remarks. From the quantity of tobacco vomited, and the quantity removed by the stomach-pump, I conjecture that not less than half an ounce, probably near an ounce, of crude tobacco had been swallowed by the patient. I think it most likely that the tobacco had been kept in the mouth until the patient was about to be bathed, and that it was swallowed, either during the time he was being undressed, or immediately after he was placed in the warm bath. The quantity swallowed was, in my opinion, amply sufficient to account for the symptoms and fatal termination of the case, even in a person accustomed, as the patient probably was, to the free use of tobacco.

The perfect prostration, the feeble and irregular pulse, and the profuse purging and vomiting, were in conformity with the known effects of tobacco in poisonous doses. The convulsions, the cries, the contracted and insensible pupils, and the bloody ejections, have not, as far as I know, been described as symptoms of tobacco poisoning, and were probably due, in this case, to the very large quantity of tobacco which was swallowed. The only fatal cases which have been reported in the human subject, have been, so far as I know, cases in which the full medicinal dose of ʒi., in the form of infusion, has been administered by the rectum. The red mucus discharges, and the red-stained mucous membranes of the intestines, indicate a certain amount of irritation not hitherto ascribed to the action of tobacco.

One remarkable feature of the case remains to be noticed, namely, the complete rigor mortis which was observed on making the *post-mortem* examination, combined with a perfectly fluid state of the blood in all the large vessels of the body. This combination is certainly very rarely observed; and perhaps is to be explained, in this case, by the persistence of the convulsive spasms which preceded death, constituting the rigidity which was observed in the dead body, and taking the place of the *post-mortem* rigidity which usually follows death, but very rarely follows it, so far as I have observed, in those cases where the blood remains fluid.

CASE XIII.—*On the use of Potassio-Tartrate of Antimony, in the form of Enema, in Obstetric Practice.* By JAMES YOUNG, M.D., Methven.

Symptoms and Treatment. In a primipara, æt. 31 and of full habit, the pains had been strong and frequent for six hours, the os uteri was thin in the edges, hard and unyielding; and the external parts contracted and tender. Sixteen ounces of blood were taken from the arm, eight grains of Dover's powder were administered, and fomentations applied to the external parts. Under these remedies the pains ceased for six hours. When they returned they affected the back, and were frequent and regular.

Result. After continuing for six hours longer the os uteri was still thin in the edges, hard, and not dilated more than the size of a shilling; the external parts narrow and contracted.

Ergot was inadmissible under such circumstances. Reasoning from analogy on the effects of tartar emetic as a local irritant, when employed in the form of lotion or ointment, I conceived that temporary local stimulation of the uterus might be induced more directly from the rectum than through the medium of the stomach, and that subsequent relaxation might be produced in the surrounding parts, without the production of nausea and general prostration. **Tartar Emetic by the Rectum.** One grain of tartar emetic dissolved in six ounces of warm water and soap was given in the form of enema, not so warm as when given for the purpose of clearing out the bowels, that it might be longer retained, and to avoid being deceived by the relaxing effects of heat. **Result.** One hour after the enema was given, there was a decided improvement on the rigid os uteri. The vagina became soft and secreted mucus freely. The os uteri became thicker and softer in the edges, and the external parts began to relax, and dilate. At the end of one hour and twenty minutes after the antimonial enema was administered the delivery was easily accomplished.

Encouraged by the result of this case, I selected for after-experiment primiparæ, particularly the robust and plethoric, where most difficulty was to be anticipated.

In eight cases where the pains were weak, and the parts unyielding, it was of great benefit in quickening the pains, relaxing the parts and expediting delivery, saving much suffering and protracted attendance.

It can then be used with safety in the early stages of labour, although the os uteri be thin in the edges and the soft parts firm and contracted. In multiparæ, when the parts are normal, the os uteri dilating slowly, and the pains weak, it will sharpen the latter, and thus shorten the duration of labour. Flooding did not occur in any case, nor was nausea or vomiting more troublesome than in the average of ordinary deliveries. In one case (multipara) there was pain in the abdomen after the placenta was removed, but not more than is often met with in ordinary after-pains. A cup of good tea was given to the mother as an antidote, and at the same time to refresh her. Being a considerable distance from my residence I left an opiate diaphoretic to be taken if the pain in the abdomen should return. On my next visit I was told that it was not necessary. None of the cases required any particular treatment.

CASE XIV.—*A Complicated Case of Hernia.* By JAMES SPENCE, Esq., F.R.C.S.E., Surgeon to the Royal Infirmary.

History. ON the evening of Friday, 27th July, I was called by Dr Gordon to visit Mrs F., æt. 56, labouring under strangulated femoral hernia. I learned that, on Wednesday morning, while hurrying to catch the train from Auchterarder, she felt uneasiness at the part, and was very sick and pained during the journey to Edinburgh, so much so, as to be quite exhausted when she reached town. Still, as she had no idea that the vomiting was connected with the swelling, she did not mention it, and her friends, supposing it was an attack of bilious vomiting, delayed getting medical advice till the Friday evening, when her sunk and altered appearance alarmed them. Dr Gordon was then sent for; he ascertained, on inquiry, the presence of the hernia, and finding it irreducible by taxis, requested me to see her.

Symptoms. I found that the vomiting was constant, and the abdomen distended and painful; constipation had existed from the commencement of the attack; the skin was of a deep yellow colour, and the cheeks flushed, but the pulse was not very much accelerated, being about 90. I explained the necessity for an operation, and having put the

Operation.

patient under the influence of chloroform, I proceeded to operate in the usual manner. On exposing and opening the sac, a small quantity of dark serum escaped; I found the intestine adherent to its internal surface, and required to be very cautious in slitting up the sac to expose the bowel, which was very dark and tense. The constriction was exceedingly tight; after dividing it, a large quantity of pale serum escaped from the abdomen. I then drew down the intestine above the stricture; on the pubic side it was closely adherent near the orifice, but the external portion of the loop was quite free and easily drawn down. It was indented at the seat of stricture, and above was red, granular, and distended; after carefully replacing the knuckle, without breaking up the adhesions of the inner portion, the wound was closed and dressed.

Progress.

Retention of Urine.

Next day I found all the symptoms relieved, the vomiting had ceased, there was no pain on pressing the abdomen, though it was still distended; and the pulse had fallen to 76, and was soft. On Sunday morning the pulse was 72; the abdomen still distended, but no pain felt on pressure; she suffered from retention of urine. She had had no evacuation since the operation, and as no purgative had yet been given, a castor oil draught was ordered, and an enema if the oil failed to act.

On Monday morning, I was surprised to hear that she had passed a very bad night, and that there had been frequent stercoraceous vomiting. I opened out the wound, both to ascertain that there was no reprotrusion, and also to remove any obstacle to the escape of feculent matter, should the bowel give way; the pulse still did not exceed 80. In the evening, I found she had remained easier; it was therefore determined in consultation to give calomel gr. iii., and opium ʒss., every four hours.

Fluid escapes from wound.

Condition of Abdomen.

Catheter used.

On Tuesday morning she was easier; there had been no more vomiting, and she had had a slight evacuation. On Wednesday I found the bowels had been very copiously moved several times, to the great relief of the patient; but so frequently as to require to be checked by an opiate. Her general appearance was much improved. On Friday's visit, I thought I detected in the discharge from the wound a trace of something like mucus tinged with bile, but as the bowels were regularly moved, and as I could not make any more pass out on pressure, I was in hopes I was mistaken. On Saturday I still noticed this appearance; but though there had been two loose stools, no feculent matter had passed by the wound, and the discharge on the lint had no feculent odour. On Saturday evening, her son came to me with a note from Dr Gordon, stating that he feared, from the report of the attendants, that urine was escaping from the wound. Her son said that on being turned to her left side, a large quantity of fluid had passed from the wound, completely wetting her chemise and bed-clothes; that the fluid was quite clear, and that after it passed off, she felt great relief, whilst before that, she had passed no urine all day. I told him to let her lie on that side so as to favour the flow, and to ask Dr Gordon to use the catheter frequently, so as to keep the bladder empty. But on reflecting, I began to think that there must be some mistake, and therefore called on Dr Gordon, and went with him to see the patient. On examination, we found the hypogastric region tense and painful on pressure, and dull on percussion, evidently from distention of the bladder. I removed the cloth which covered the wound, and sponged it out. I then had the patient turned on her left side, and pressed on the abdomen, but no fluid came. Dr Gordon then used the catheter, and drew off a very large quantity of perfectly clear urine. This seemed to me pretty sure evidence that no urine could have passed. Still, as the attendants seemed certain they had seen it, one of them was taught to use the catheter; and the wound was left without any covering but a small piece of lint. At next visit, they still persisted that they had seen pale yellow fluid like urine pass from the wound, although the bladder had been emptied only an hour and a half before; and there were stains on the chemise of a bright yellow colour. The bowels continued to act regularly, and no feculent matter passed by the wound; but there were still traces of bilious-looking matter on the dressings, though without any feculent smell. On dressing the wound, on Tuesday 7th August, there was a very considerable escape of bilious-looking mucus and air, and also of a pale yellowish creamy matter, after the pus had been cleared away, but still the discharge had no feculent odour; and this led me to suspect that the portion of gut which had opened must be higher up, in the small intestine.

Attack of Dysentery.

On Thursday, August 9th, I found she had suffered from a dysenteric attack; the evacuations were scanty, red, and watery. I ordered an opiate to be given, sinapisms to be applied to the abdomen, and lime-water and milk administered occasionally. She had a rigor that night, and, next day, had a somewhat sunken look; but the pulse remained at 72, and the evacuations from the bowels were feculent, and of a natural appearance. There was but very slight discharge of the bilious-looking matter from the wound, the tongue moist and clean, the breath had a peculiar sweetish "hay" smell. No medicine was ordered. Saturday, 11th, the patient suffered much from dysenteric diarrhœa, for which acetate of lead and opium were ordered. On the 13th, the dysentery had been checked, and the evacuations were of a natural appearance and consistence. From this time she went on very favourably; the wound was, on the 15th September, entirely cicatrized. As she was now convalescent, I ceased to visit her.

About three weeks afterwards, an attack of pleuro-pneumonia supervened, under which she gradually sunk, and died on the 5th October.

Post mortem Examination.

Leave was obtained to examine the body. On opening the abdomen I found scarcely any trace of the effects of the hernia, except the adhesions in the immediate neighbourhood of the incision; these adhesions now presented their elongated filamentous connections between different portions of the intestine and the left iliac fossa. The portion of the bowel which had been in the sac, was a portion of the upper part of the ilium. It was nearly free, with the exception of a point of adhesion near the wound, corresponding to the point where the fistula had existed; and one or two elongated bands of lymph passing between it and the sigmoid flexure of the colon. On its posterior aspect another loop of small intestine was found adherent; and although the bands of lymph were now much attenuated and elongated, they still kept it fixed at such a sudden curve, or rather angle, that when matter was injected into the upper part of the loop, it only passed off very slowly by the lower; in fact, the bands seemed to form a contraction upon it. On examining the interior of the portion of the intestine adherent, at the situation where the fistulous opening had existed, it is scarcely possible to discover any change in the mucous surface, beyond a slight obliteration of its valvular folds at one point, but there is no distinct mark of a cicatrix, although the symptoms during life unequivocally marked the existence of fistulous communication with the bowel. The bladder and all the other abdominal viscera were quite healthy. On opening the thorax I found the right lung much compressed; nearly the lower half consolidated. It was firmly adherent to the pleura costalis anteriorly; and on breaking down the adhesions I found they formed the boundary of a collection of pus mixed with large masses of lymph. The left lung was healthy.

The progress of this case was rather unusual; for although the state of the intestine in the neighbourhood of the strangulation, the copious escape of dark serum on dividing the constriction, together with the partial adhesions, and other symptoms of inflammatory action, gave me an unfavourable opinion of the case; yet from the favourable condition of the patient for the first two days, I was in hopes that these gloomy prognostics would not be verified. So soon, however, as the peristaltic action was excited by the purgative, the stercoraceous vomiting commenced. This symptom could only be due to one of two causes, viz., either loss of tone and vital energy in the portion of the bowel which had suffered from strangulation, or from effusion of plastic lymph, matting the intestines together, so as to constrict them, or otherwise to prevent the passage of their contents. The relief afforded by the calomel and opium led us to conjecture that the latter was the case. The death of the patient from pulmonary disease so soon after the hernia was cured, gave an opportunity of ascertaining the true state of matters; and the adhesions then formed, and especially the loop of small intestine adherent to the posterior surface of the strangulated hernia, fully explains the cause of the stercoraceous vomiting; for it gives evidence, even yet, of what must have been the matted state of the parts before lymph was absorbed. The adhesions of the sigmoid flexure of the colon to other parts, show that it must have suffered from the inflammatory action, and serve to explain the dysenteric symptoms which continued for some time. As to the fistulous opening in the portion of bowel which had suffered from constriction, it seems to have been a mere point; scarcely a trace of any alteration beyond a slight adhesion being visible in that part of the intestine, and hence may be explained the character and small quantity of the discharge which passed from it. The cicatrix of the external wound was firmly adherent to a dense fibrous tissue which completely and firmly closed, or rather obliterated the femoral ring.

Part Second.

REVIEWS.

Notes on some of the Developmental and Functional Relations of Certain Portions of the Cranium. Selected by Frederick W. Pavy, M.D., London, from the Lectures on Anatomy delivered at Guy's Hospital, by John Hilton, F.R.S. London. 1855.

This is an interesting book. It contains the thoughts of an able and well known anatomist and surgeon regarding the meaning or use of certain parts of the cranium, and their mode of growth. We readily grant Mr Hilton's proposition, that "each process of bone is developed for some especial purpose;" and that such a mode of study "leads to some important and exceedingly interesting considerations, and, at the same time, divests the study of the cranial bones of that dry detail, which otherwise belongs to their simple anatomical description." We say this, by all means, not merely of the cranial, but of all the bones, and of the whole body. Anatomy is a dry science or not, according as it is handled. The tracing of bare facts, says Sir William Hamilton, is " open to every blockhead with patience, manual dexterity, and acute senses." We would be the last to promote fanciful theory in anatomy—that is, mere speculation, or theory in the bad sense of the term; but, if the speculation or theory be good—that is, be legitimate induction—then it is the life and being of anatomy, as of other sciences. It has been said, that we do not know a science thoroughly until we have taught it. We say, not even then: we may teach, and teach, and yet not know; not until, or unless we have observed for ourselves, and then thought about it; and then, as Bacon says of conversation, teaching will make a ready man, as reading and writing make a full and exact one. Anatomy—the anatomy of the scalpel and forceps—is not an exhausted but a neglected science. It has less than any other, within the medical curriculum, gone through the ordeal of modern scrutiny; but the eye of the future anatomist must be a thinking as well as a scrutinising eye.

Mr Hilton handles the cranium thoughtfully; and every man who observes and thinks for himself, must have something to communicate which has escaped the notice of others. We acknowledge with pleasure our debt to him for suggestions on various points, and will not be supposed as wishing to condemn or depreciate, while we now notice and discuss some of his views, whetting our scalpel a little against his, for the better dissection of truth.

Mr Hilton gives the result of his observations on the formation of the *frontal sinuses*. He finds that they begin about the age of fourteen or fifteen, but often later, and continue enlarging till mature age. That in adults they vary much in size, and are sometimes even wanting; but he does not seem to distinguish between male and female. In the latter, are they not generally small? though we have seen them, in an aged female subject, of tolerable size. It is for this reason that the female brow is more vertical, retaining more of the form of the forehead of the child; while, in the adult male, the frontal sinuses give the lower third or half of the forehead its forward slope.

Mr Hilton believes the frontal sinuses, and also the other air cavities which open from the nose—the sphenoidal, ethmoidal, and maxillary sinuses—to be accessories to the nasal cavities, as connected with smell; hence attaining their greatest development when smell is attaining its greatest activity. They are accessories to the nasal cavities, in so far that they open into them; but we do not see why, on that or any other account, they should be regarded as olfactory in their nature or design. The nose is primarily a respiratory passage, to which the anterior and posterior nares are the front and back doors: smell is also and appropriately placed here, but is located high up, in the roof and third gallery; while the two lower galleries, or meatuses, are simply respiratory passages, as well as air warmers. Our view of the sinuses is this:—Bulk is wanted, at and between the eyebrows, between the orbits, and especially for the upper jaw: to have had this with solid bone, would have made the face too heavy; certain parts are, therefore, hollowed out, and filled with air, which is in the neighbourhood, and is most conveniently let in from the nose. The principle or aim is the same as in the case of the medullary canal of the long bones, which are then filled with the lightest solid—marrow; but, at the face, a lighter substance still is at hand, and fills the shell-like cavities, as it does the bones of many birds. The formation of the ethmoid cells gives a greater surface and breadth, and of the antrum a greater height, to the nose, for its respiratory as well as olfactory function, but in no other sense; and, therefore, not properly, can these air cavities be said to be connected with smell. That smell should suffer, in disease of the frontal sinuses, is not to be wondered at. Was the olfactory region of the nose not likewise affected in these cases?

Some interesting views follow regarding the *cranial sinuses*, and the modes in which they are emptied and protected against overdistention. The more frequent epistaxis of children is a relief after crying fits, down through the foramen cœcum. The latter and the parietal foramen close in the adult, being less needed as escapes for blood, than in the child. Without doubting this, we may remark, that all vascular foramina are larger in young bones; and the parietal and mastoid foramina are sometimes placed in the sutures, and, therefore, not seen in the separated bones. We agree with Mr Hilton, in regarding the mastoid foramen as an important safety escape, from the lateral sinus, and a means by which local bloodletting may be truly so, and derivate from the interior. He regards the ophthalmic vein, not as tributary, but an outlet to the cavernous sinus; that its current is naturally forwards; and that obstruction to the veins of the neck, as in strangulation or asphyxia, causes protrusion of the eyes, by the engorgement of the veins of the orbit. Also, that the pulsation of the carotid artery in the cavernous sinus prevents stagnation, and urges on the current. The torcular Herophili, however, gets on without the aid of agitation; and, if the carotid does pulsate actively, how does the abducens nerve agree with it?

The right lateral sinus is larger than the left, according to Mr Hilton, because the right jugular vein is a more direct channel to the right auricle. Is the sinus large in proportion to the bony groove; and, admitting this, do the longitudinal sinus and torcular Herophili lie to the right side because the right lateral sinus is intended to be the larger, or is that lateral sinus larger because the longitudinal sinus comes down on the right side of the middle line?

Mr Hilton has also some peculiar views regarding the *sub-arachnoid fluid*. That, in the middle and posterior fossae, the brain is separated from the wall by a layer of this fluid, on which it rests, as on a water-bed, and is thus protected from injury against the irregular and "rough" (?) bony prominences; that it also serves to interrupt the vibrations which pass along the various bony ridges or costae, and are gathered to certain points or poles, as the clinoid processes, and thence shed and lost upon this water-bed.

Also, that the brain is protected from the cranial vibrations, under injury or force, by the dura-mater, which stops or "damps" them, just as a layer of leather inside a bell will prevent it ringing. If correct, the idea is ingenious.

Mr Hilton believes that the thin fluid which oozes from the ear in fractured base, is sub-arachnoid fluid; and he states that, in cases where the membrana tympani has not been ruptured, this fluid passes, or may pass, down the Eustachian tube, and trickle into the pharynx. Also, if fracture of the base results from a fall on the top of the head, it is from the weight of the body, through the spine, telling on the occipital condyles. In explaining the production of fractures of the base, is sufficient allowance generally made for the greater hardness, and consequent brittleness, of the petrous portion?

Mr Hilton thinks that blood-vessels are distributed to parts serving the same function, and illustrates this by the middle meningeal artery, which is derived from the internal maxillary, or "masticatory artery," and goes to supply the inside of the temporal or masticatory region. But why this artery does not come from the vertebral or internal carotid is evident. The two circulations are separated, not by the skull, but by the arachnoid cavity; the arterial circulation of the brain is limited by the arachnoid, while the external carotid supplies everything outside the arachnoid, the inside of the skull as well as the out, and through its thickness also. The serous cavity is a more complete and impassable separation than the skull could have been. Then, what other artery could the meningeal have come more conveniently from?

Then follows a peculiar and comprehensive view regarding the growth of the sphenoid bone; that it exerts an influence on several others, guiding or pushing them into their desired positions in the growing cranium and face. The spinous process or angle pushes the temporal outwards and backwards, setting the petrous portion in its proper adult obliquity, also carrying outwards and backwards the glenoid cavity, so as to elongate and widen the lower jaw, and with it widen the pharynx and mouth. The great wing pushes out the external angular process. The median plate of the ethmoid is pushed upwards and forwards, and, through it, the nasal bones, so as to lead to the formation of the frontal sinuses. Also, pressing on the vomer, the latter is made to "plough" the palate downwards and forwards, thus elongating the jaw, deepening the nose, and depressing the palate from a Gothic to a Norman arch; and the vomer is regarded as a temporary organ, having served its chief purpose when the ploughing is finished and growth completed.

The objectionable part of Mr Hilton's sphenoidal theory, we apprehend, is the assumption that the sphenoid has such influences and powers, and that such are needed. The facts are correct, that such changes do take place, and the purposes thereof are evident enough, but why endow the sphenoid with the director-generalship? Why should the temporal bone and palate be unable to fall into position without a push from the sphenoid? and not be quite as able to go themselves as the sphenoid is to make them go.

Mr Hilton thinks the differences of the angle of the lower jaw, at different ages, have reference to the muscles; so that, in the child and old, the masseter and internal pterygoid may act with greater mechanical advantage; these being the less active periods of life, and nature thus compensating for her less activity or muscular weakness.

Commonly, in nature, we find several purposes served by one and the same arrangement, and we must be careful not to fix on one only, and that, perhaps, not the most essential one. Have these changes not reference to the different conditions of the dental part of the jaw? In the child, this part (the body) is short, not going far back; and is not this the reason why the ramus slopes so obliquely downwards and forwards, thus giving the very obtuse angle; the shortness of the ramus corresponding to the general want of height in the child-face. But, in the adult, the molar part is elongated, thus pushing the angle back, and giving the more perpendicular ramus and the approach to a right angle. In the old, the resumption of the infantile obtuseness of angle, but with apparently good height of ramus, is not so easily explained. Mere alveolar absorption, after the fall of the teeth, will give obtuseness to the angle on its concavity, but cannot affect the angle formed by the ramus and lower edge of the body, or angle proper. There is, therefore, a real change in the angle in the old. But, though not directly resulting from dental loss and alveolar absorption, is it not intended to correct the effect that these would otherwise have on the parallelism of the jaws or gums, in mastication in the edentulous mouth. We have seen very obtuse angled specimens with a few of the front teeth, or their sockets, remaining, but never without most of the teeth having been lost and most of the alveoli absorbed. When these changes have occurred, the jaws come nearly an inch nearer each other before the gums meet, and the change of angle may have reference to this. We do not say it is so, but merely throw out this idea as most probably involving the principle of the change, and confess that here we are but little beyond the second stage of progress in human knowledge—that of difficulties and doubts.

Mr Hilton assigns reasons why the condyle has less inward and backward obliquity in the child than the adult. Without meaning to dispute his views regarding the mechanism of the glenoid cavity, we must say, that it seems to us, that the obliquity of the condyle is quite as great in the fœtus and child. Here we must take the actual obliquity, and not be deceived by the point at which the prolonged axes meet, as the region between the foramen magnum and posterior nares is relatively larger in the child. Whether this be the true principle of design we will not aver; but we have always pointed out the fact that the obliquity of the condyle places it more at right angles to its own half of the bone, that is, to the axis of the lever which makes the condyle its fulcrum. The backward and outward slope of each half of the bone is fully as great in the fœtus and child, and so is the obliquity of the condyle; its axis being thus more at right angles to the axis of its own side of the bone, than if it had been placed horizontally.

It is right to say, that we have noticed those of Mr Hilton's views from which we differ rather than those in which we concur; but the specimens presented will, we doubt not, sufficiently stimulate every anatomist and scientific surgeon to possess himself of this book. We wish others would follow Mr Hilton's example, and record their favourite views even at the risk of critical discussion. It should be added, that Mr Hilton considers the cranium surgically as well as philosophically, throwing into anatomy that double interest which should always be given to it. Without both, anatomy cannot be taught as it ought to be; at one time the interest is physiological and philosophical—use, mechanism, and design; at another, in the connexion with disease, or surgery; or both are blended. Without the one, it is a compound of the dry and utilitarian; without the other, it want swhat the medical man seeks it for; without either, it is a repulsive task; with both, student and teacher are alike amply rewarded. As Dr Barclay used to say, anatomy would be an ugly witch to be wedded to were it not for the dowry she brings.

S.

General Outlines of the Animal Kingdom. By T. RYMER JONES. Second Edition.

THE first edition of this work was so well received, and its claims to a high position in the literature of natural history so universally acknowledged, that on this occasion it is only necessary for us to point out the improvements contained in the present issue. Whatever Owen has done for the vertebrate skeleton, Van Beneden and Siebold for the embrogeny of parasitic worms, Steenstrup, Dalyell, and Agassiz, for the hydriform polyps and acalephæ, Milne Edwards for mollusca and alcyonoid polyps, or Müller for echinodormata—whatever microscopists have done for infusorial organisms—or, generally, whatever additions have been recently made to our knowledge of vital structure by distinguished specialists and naturalists as a body—the reader will here find carefully epitomised and digested. The book is up to the times—no mean praise in these days of restless investigation. The illustrations now amount to four hundred. To say that they are beautiful, were to say nothing, because inferior designs are now the exception, not the rule; but, as Mr Van Voorst is the only bookseller (so far as we know) who restricts his blocks to the book which they first illustrated, all wood-cuts from his mint have a value peculiar in themselves.

Horseley's Catechism of Chymical Philosophy.
Galloway's First Step in Chemistry. Second Edition.

If the world does not know chemistry, want of manuals cannot certainly be assigned as the reason. They come upon us with a copiousness that outstrips deliberate criticism; and, but for the pleasing consideration, that a plethora of text-books indicates increased attention to a science of unlimited application, the infliction would be troublesome. Mr Horseley attempts nothing beyond a "familiar exposition;" and, to those who desire a general acquaintance with "chymistry," his ample page, excellent woodcuts, catechetical structure, and felicitous explanations, will, doubtless, give satisfaction. Mr Galloway addresses another class—namely, those who would know chemistry to purpose; and to them he says, "Gentlemen, you must begin at the beginning. You cannot make after-progress, unless you are thoroughly grounded in nomenclature, notation, construction, formulæ, and mode of expressing changes. In other words, you must know the language of chemistry." This, in substance, is the design of Mr Galloway's book, and he has carried it out with singular success. For teaching it is well adapted, there being upwards of four hundred carefully prepared exercises.

Part Third.

PERISCOPE.

MEDICINE.

KÖLLIKER, MOLESCHOTT, AND RICCHETTI ON THE VITALITY AND DEVELOPMENT OF SPERMATOZOA.

In the *Monthly Journal* for January 1854 (Vol. XVIII. p. 59), we gave an account of Virchow's discovery that the cilia of human epithelium, when losing, or deprived of their vitality, are capable of being stimulated to renewed action by the influence of a weak solution of caustic potash. Kölliker has since found that spermatozoa are similarly affected by solutions of caustic potash and soda, and also by solutions of ammonia. If we add a solution of the caustic alkali to spermatozoa which have been allowed to become completely at rest in a diluted solution of sugar or albumen, we will observe lively movements of them taking place, which cease after an interval of from half a minute to two minutes, and are then incapable of being re-excited by the influence of any agent whatever. These appearances are observable in the spermatozoa alike of mammalia and amphibia. The movements of spermatozoa are not impaired by their being placed in *animal fluids* of higher concentration or saltness, which are not too acid, too alkaline, or too tenacious. Thus, in blood, lymph, alkaline or neutral urine, alkaline milk, thin mucus, thick bile, and the vitreous humour, they move with perfect vigour; but they do not do so in saliva, in acid or ammoniacal urine, in sour milk or mucus, in gastric juice, in thin bile, or in thick tenacious mucus.

If the concentration of tenacious mucus be rendered lower, and its reaction be rendered neutral, they are not affected by it. In most solutions of organic substances, of a medium degree of concentration, their vitality remains unimpaired; as, for instance, in solutions of all kinds of sugar, in albumen, urea, glycerine, salicine, and amygdaline. Their movements are retarded by concentration of these substances, and restored on their being again diluted. Many organic substances destroy the contractions of the spermatozoa, from *chemical* action, such as alcohol, creosote, ether, and tannin; while others *mechanically* destroy their action, as most oils. Metallic salts destroy their movements in very weak solutions; and corrosive sublimate acts thus in the dilution of 1 part in 10,000 of water. Acids also are fatal to them in the smallest quantities; muriatic acid in the $\frac{1}{7500}$th degree of dilution. The caustic alkalies, as we have said, act in a contrary way, stimulating them to renewed action.

Kölliker observes that his most recent researches lead him to believe that spermatozoa are developed, not *in* the nuclei of seminal cells and cysts, but *out* of these nuclei. These nuclei (which are either found existing singly in small cells, or in greater numbers, and *often free*, in larger cells and cysts), become elongated, and extend themselves at one end in the form of a filiform appendage, the remaining portion forming the head of the spermatozoon. At first the spermatozoa lie rolled up in the cells and cysts, and thereafter become free.—*Verhandlungen der Physicalisch Medicinischen Gesellschaft in Würzburg.* Bd. vj. Hft. I., 1855.

The more recent researches of Moleschott and Ricchetti confirm the above conclusions of Kölliker. These authors found that spermatozoa, taken from the vesicular seminales of oxen, could be re-excited to motion (even three and four days after death) by a weak solution, containing 5 per cent. of phosphate of soda. But, singular to say, by the use of the caustic alkalies they obtained results quite opposite to those of Kölliker, for they could not, by employing them in every degree of concentration, excite renewed extractions of the seminal animalcules of oxen. They also found, that those agents which acted powerfully on the spermatozoa of oxen, had a contrary effect on those of frogs, viz., that they arrested their motions.—*Wien Medicin Wochenschrift,* 18, 1855.

OBSTINATE ERUPTIONS AFTER VACCINATION.

On the 2d February, Dr Abelin exhibited, to the Stockholm Medical Society, a child, æt. two years, in whom, after vaccination last autumn, there had occurred a most obstinate eruption, which had resisted all the appliances of medical science. This commenced in the form of papulae, which gradually became filled with pus; these left behind reddish blue spots, which remained for a long while, and were at first intolerably itchy. The medical treatments which had been adopted were, various kinds of baths, sulphuret of antimony, cod-liver oil externally and internally, iodide of potassium, and emollient applications. The child, which was plump and healthy when the eruption commenced, had become emaciated. Dr Abelin requested the opinion of the members of the society as to the nature and treatment of this eruption, and as to its relation to vaccination.

Dr Malmsten remarked, that the chronic eruptions, which were so common after vaccination (which was often blamed for them), depended less on the character of the vaccine virus than on the individual constitutional conditions of the persons vaccinated. He did not consider these eruptious as of a syphilitic nature, but thought they resembled ecthyma, not *ecthyma lucidum,* as imagined by Dr M. Retzius, but ecthyma as it occurs in dark, hemorrhagic and very cachectic individuals. As regarded the treatment of the affection, he thought that it should first be ascertained whether the itchiness depended upon the presence of acari. If these were absent, he recommended the use of baths, of decoction of chamomile, and the administration of quinine with rhubarb. By means of these he had recently treated a case of infantile pemphigus (which was a rare affection in children), with complete success.

Dr Carlsson also considered that such cases were neither syphilitic, nor the results of vaccination. He had always treated them by baths, regulated diet, aethiops antimonialis,[1] and, in some cases, by the use of Hydrargyrum cum Creta.

Dr Gravenhorst had treated a similar eruption, occurring after vaccination, by means of mercury and rhubarb, and frequent baths.

Dr Abelin finally expressed his conviction of the absence of the *acari scabiei* in his case; for not only had the eruption occurred simultaneously over the whole body, but he had been unable to detect any of these parasites on examination.—*Journal für Kinderkrankheiten.* May and June 1855.

MIASMATIC AND CONTAGIOUS DISEASES—THE DISTINCTION BETWEEN THEM—AND THEIR GEOGRAPHICAL RELATIONS.

The following are the conclusions arrived at by Dr Mühry of Göttingen, in an interesting paper recently published on the above subject.

1. *Miasmatic Diseases* are specially dependant upon the influences of soil, humidity, temperature, and seasons, *like a vegetation.*

2. They generally manifest themselves and operate immediately after invasion, without any regular period of incubation,—*like a poison.*

3. They may occur again and become chronic in the same individual, without any diminution of his susceptibility. (*Receptivität.*)

4. They do not regenerate themselves in the human organism.

1. *Contagious Diseases* manifest themselves quite independently of soil, and and also (with some particular exceptions) of temperature and seasons.

2. The attack always occurs after a longer or shorter, but regular period of incubation.

3. They generally occur only once in the same individual, and if they return it is after a long space of time.

4. They reproduce themselves solely in the human organism.

The relation of contagions to temperature, or the geographical distribution of such diseases may be thus expressed. The majority of them are ubiquitous, *i.e*, independent of temperature, and appearing in every zone of the world, irrespective of the period of the year. Examples of this truth are variola, scarlatina, rubeola, pertussis, cynanche parotidea, aphthae, puerperal metritis, erysipelas, hospital gangrene, and malignant pustule. Those, on the other hand, which are influenced by temperature and the seasons, are divisible into three classes :—

1. Those which are confined to high temperatures, and are common in the tropics,—lepra, frambœsia, dysentery, and aphthae.

2. Those which are most common in the temperate zones :—Erysipelas, puerperal metritis, pertussis, and croup.

3. Those which are found in the regions between the tropical and polar zones :—Plague and typhus.—*Henle's Zeitsch. für Rationelle Medicin. Bd.* VI. *Heft.* II.

CROUP AND METHODS OF ITS TREATMENT.—I. TREATMENT BY SULPHATE OF COPPER.

Dr Hönerkopff has recently published a paper, in which he extols the administration of the sulphate of copper in this disease. He has used this substance in 99 cases of croup, 77 of which recovered; and the total quantity administered by him to these patients was 2846 grains, or, on an average, 31½ grains each. He has never seen any poisonous effects result from its use, although one child got 27 grains daily for a week, or in all 216 grains; and another, 4½ years old, took 150 grains in 7 days, and a third, aged 2½, 120 grains in three days. No inflammation, gangrene, or other bad symptoms took place. In 8 out of the 13 cases which proved fatal, there were either other diseases co-existing, or the author was called to see them too late, so that he considers that his remedy failed in only 5 out of the remaining 82 cases. The mode in which he administered the salt was to dissolve from 6 to 8 grains in ℥j of water; and, according to the age of the patient, and the severity of the vomiting induced, to administer, more or less frequently, from a tea-spoonful to a table-spoonful of this solution, until vomiting occurred. The nature of the vomiting should always regulate its administration; for the induction of vomiting is absolutely essential for the therapeutic action of the remedy, as it has a kind of specific influence on the disease. The more severe the case, the more frequently does the author administer the doses of the solution—giving them first at intervals of from 10 to 15 minutes. After from 4 to 6 doses have been given, sooner or later the urgent symptoms are found to abate. At first, indeed often after the first spoonful has been taken, the cough becomes less frequent, and less troublesome, and the difficult respiration and general distress are also relieved. Thereafter the croupy sound of the cough becomes changed, and crepitating mucous râles are audible. When this improvement has fairly commenced, the medicine may be administered less frequently, say every 20 or 30 minutes, and still more seldom as the malady recedes. In very severe cases the remedy should be continued every two hours, even after all traces of the cough have gone, because otherwise a relapse may occur in the evening, and necessitate a renewal of large doses of the salt. It is only in very bad cases, when, after a period of 12 or more hours, no change in the croup-sounds has taken place, that we need despair of success; and the author observes, that very often a change for the better takes place quite suddenly and unexpectedly. He warns us against remissness in our treatment after signs of improvement have commenced, as the disease, if unheeded, may break out afresh. In cases where the copper fails to produce vomiting, we need expect no good from its administration, and we have then to choose between tracheotomy, cold affusion, and musk, and the two latter remedies, according to Hönerkopff, may induce irritability of the stomach, and thus prepare the way for the renewed use of the sulphate.—*Journal für Kinderkrankheiten*, March and April 1855.

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[1] This is a composition of one part of mercury to two of sulphuret of antimony. It is used for skin diseases in continental practice.—*Translator.*

Dr J. Samter, of Posen, has also written a paper in praise of the sulphate of copper in this disease. His remarks on its advantages and mode of administration so closely resemble those of Hönerkopff which we have given, that it is unnecessary to quote them here at length. He uses a solution of from 4 to 8 grains (and, in severe cases, 10 to 12 grains), in ℥ij of water; of this he gives ʒij repeatedly, till vomiting is induced, and thereafter ʒj every two hours.

In addition to the use of sulphate of copper, this author, at the beginning of the disease, applies 4, 8, or 12 leeches to the larynx, and especially if there be any pain felt there, and he afterwards applies stimulating epithenes. He also uses the inhalation of powdered alum and sugar, employs warm baths, and envelopes the feet in hot sand, etc.—*Günsburg Zeitschrift*, vj. 2, 1855.

Dr Luzsinsky considers that there are four therapeutical indications in the treatment of croup which must be attended to by the physician. 1st, To change the peculiar blood crasis which exists. 2d, To prevent the localisation of the inflammatory process in the larynx. 3d, To treat the spasm of the larynx. And 4th, To encounter and destroy the false membranes which have been formed.

For the fulfilment of the first indication, most men have recommended the use of mercurials, but Luzsinsky depends more upon alkalies, and especially on the carbonate of potass, which exercises a solvent action on all the albuminous products of the organism. Its use retards the development of the constituents of the blood, and greatly impairs the vital coagulability and inherent plasticity of that fluid. This is the theory of the action of this salt, which Eggert recommended as a specific in croup, after an experience of it in about 250 cases. It may be given advantageously in doses of from ʒss. to ʒij. daily. Carbonate of soda may do in mild cases, but the other alkali is alone to be relied on in more severe ones.

The second indication may be answered by the application of a blister, the size of a crown-piece, to the upper part of the manubrium of the sternum.

Spasm of the larynx is most surely treated by opium, applied externally, in conjunction with vesicants (15 grains to ʒss. of opium, to ʒss. of lard), and also given in small doses internally.

To arrest the formation of the pseudo-membranes, nitrate of silver, in a concentrated solution, may be applied to the fauces and entrance of the larynx. Emetics may thereafter be given, and they are only necessary in the exudative stage. Luzsinsky gives decided preference to the use of sulphate of copper, which he administers by giving, every 15 minutes, a tea-spoonful of a solution of 2 or 4 grains (or even more), of the salt in ℥iiss. of some fluid. He does not look upon tracheotomy, in croup, in a favourable light.

Out of 30 cases treated thus by Dr L., only 7 died.—*Oester. Zeitschrift*, i., 6, 8, 10, 1855; also *Schmidt's Jahrb.* xi., p. 207, 1855.

II. EXTERNAL APPLICATION OF IODINE IN CROUP.

Dr Menschel relates a case in which, despite the timely and assiduous use of all the ordinary remedies for this disease, difficulty of respiration and danger of suffocation increased. He then painted the whole of the front of the neck very darkly with a strong tincture of iodine (ʒj. of iodine to ℥j. of spirit), and covered the part with flannel, smeared with digitalis ointment. After an hour the urgent symptoms had abated, the patient slept quietly during the night, and next day was convalescent.—*Preuss. Verein. Zeitung*, 10, 1855.

THERAPEUTICAL RECORD.

ON THE THERAPEUTIC PROPERTIES OF IODURET OF GLUTEN—"GLUTEN IODURE."

Two specimens of this substance were exhibited by M. Gagnage, at a meeting of the Academy of Sciences, in July 1854, but, at that time, the subject was not referred to a committee, as the method of preparing the compound was not then given. M. Gagnage has now, however, communicated the formula for its preparation, along with the result of his experiments, made with the view of ascertaining its mode of action. The most important properties he ascribes to it is that of promoting the assimilation of the iron contained in the food, and which, in certain diseased conditions, is imperfectly or not at all assimilated. On analysis of the alvine evacuations in chlorosis, he asserts that the quantity of iron found in them is much greater than exists in a state of health, and that, under the influence of suitable treatment, during which the ioduret of gluten is administered, this increased proportion gradually diminishes to the normal standard.

The communication has been handed over for inquiry to a committee, composed of MM. Pelouze, Andral, and C. L. Bernard.—*Gazette Médicale.* June 16, 1855.

MIKSCHIK ON THE EXTERNAL APPLICATION OF IODINE IN OBSTETRIC PRACTICE.

Dr Mikschik has employed the local application of Tinct. Iodinei, by a camel-hair pencil, to the os uteri, with the happiest results, in cases of suppressed and painful menstruation; but he has not, like Boinet, found it useful, when thus applied, in acute catarrh of the vagina and chronic blenorrhea. He considers the use of this remedy to be counter-indicated by the existence of pregnancy, inasmuch as hemorrhage, abortion, or inflammatory attacks, might be thereby induced. In a case of ovarian dropsy, Mikschik found that the disease disappeared, after three or four weeks, by the use of cataplasms containing ʒi of Iodid. Potassii, and 10 grs. of pure Iodine, to a pound of water. Menstruation returned. The urine, in this case, exhibited no traces of iodine, although when the smallest doses are taken internally, the medicine is present in the urine.—*Wien. Med. Wochenschrift* 22, 1855.

TINCTURA FERRI MURIATIS IN UTERINE HEMORRHAGE.

Dr von Schreier, of Hamburg, places the greatest reliance on this preparation as a styptic, in cases of uterine hemorrhage. He affirms that he has never lost a case in which he has had recourse to its use. He employs it in the form of injections, containing from 50 to 100 drops to ʒiij of water. In cases of placenta praevia, he inserts a sponge-tent, saturated with the tincture, as high into the os uteri as possible, and by this means, he not only arrests the hemorrhage, but after a period of from 6 to 12 hours the os is so much dilated, that artificial delivery can be accomplished with ease.—*Monat-Schrift für Geburtskunde* (Bd. v. Hft. 6. 1855).

INHALATION OF CHLOROFORM IN PNEUMONIA, BRONCHITIS, ETC.

Dr Hutawa states, that he has obtained the happiest results by causing ʒss. or ʒi. of Chloroform to be inhaled every hour, day and night, by patients affected with pneumonia.—*Preuss. Verein. Zeit.* 11, 1855.

Dr Malmsten of Stockholm, stated recently at a meeting of the medical society of that city, that he had cured two cases of pneumonia, and one case of capillary bronchitis by means of inhalations of chloroform. Dr Abelin observed, that he had used inhalations of this anæsthetic in three cases of pertussis, which were complicated with capillary bronchitis, without good results. Dr Berg remarked, that chloroform used thus, might relieve a very serious part of the disease, viz., the local pain—a symptom which was too little attended to. Future observations on the action of chloroform, when given in this disease, might prove that pain constituted a most prominent and serious feature of the malady.—*Journal für Kinderkrankheiten*, 1855. *Band XXIV.*, p. 435.

Part Fourth.

MEDICAL NEWS.

THE MONTH.

We regret having to announce the death, on the 5th ult., of Sir George Ballingall, Regius Professor of Military Surgery in the University of Edinburgh. Several parties have been named for the vacancy, but, up to the time we write, the intentions of the Crown have not transpired.

A sharp discussion has been carried on for some time, respecting the Thomsonian lectureship on Mineralogy in the University of Edinburgh. Dr Thomson of Palermo bequeathed, by will dated 1800, his collection of minerals and the sum of L.1500, to the dean and chapter of Christ Church, Oxford, on condition that they should inspect the collection every year, that they should expend one-fifth of the income in extending it, and that they should appoint and pay out of the residue a lecturer on mineralogy. The dean and chapter declined both money and minerals, and, in conformity with an alternative clause in the deed, both were offered to the Town Council of Edinburgh, "for the promotion of mineralogy in its University." The Council, along with the heads of several public bodies associated with them in the trust, agreed to accept the bequest, and, of course, by implication, became bound to fulfil its conditions. On Dr Thomson's death, the minerals came to Edinburgh, and in 1808 Professor Jameson was appointed custodier and lecturer. The money was not received by the Council till 1821, and even then was subject to a life-rent, which did not merge till 1848. Profsssor Jameson did not, therefore, receive any remuneration for forty years. On the death of Professor Jameson, Professor Edward Forbes was appointed Thomsonian lecturer, and Professor Allman now holds the office. At a recent meeting of the Physical Society, Dr Fleming complained of mal-administration of the bequest, and Mr Alexander Bryson threatened an action against the trusteees, in order to compel them to comply more literally with the provisions of the will. Some of the minerals are in the University Museum, and others are in "boxes under the Library;" the want of a catalogue being alleged as a reason for their not having been put in order at the time of their first arrival. It is clear that, as regards the extension and inspection of the collection, the trustees have not fulfilled the injunctions of the testator, and it is possible that the law courts might find that the lecturer must be other than a professor; but this by no means appears to be clearly enjoined, and, if the patrons appoint a qualified lecturer, it really is of little consequence whether he has previously occupied a chair or no. The controversy is not, however, without its lessons. It should teach public benefactors, that if they wish their bequests to be complied with, they should not annex unreasonable stipulations to them, and it should induce the Town Council of Edinburgh not to accept trusts and then ignore their conditions, as however obscure in importance or remote in point of time, "the age is now grown so picked," that there will not be found wanting intelligent and spirited citizens, like Mr Bryson, ready and prepared, at whatever sacrifice of means or trouble, to enforce and vindicate public rights.

We observe, with pleasure, that Monthly Reports of the Births, Deaths, and Marriages in the eight principal towns of Scotland, are in future to be published. The classification of diseases is based on the returns of the Registrar-General for England, and we have only to regret that the copious meteorology of the English reports has not at once been adopted. We are willing to admit the difficulties attendant on the working of a new bill, but the quoted meteorology of the "ordinance department of the royal engineers at Edinburgh," is so glaringly deficient in one respect, that for medical purposes at least, we marvel that the statist should, even for the nonce, have quoted their tables. In the last column we have the "estimated strength of the wind in pounds," and under that head we have the maximum and mean for morning and evening; but, strangely enough, while we have the weight of the wind, we have not the direction, the latter, in Edinburgh particularly, being decidedly the more important item of the two. The east wind occupies such an important place in our popular hygiene, that it were of great consequence to ascertain precisely if it really is deserving of the opprobrium which it enjoys. We therefore trust that, in future tables, this important omission will be supplied. Now that we have in Scotland a Meteorological Society, we ought to be in possession of a large amount of tabulated statistical matter, illustrative of natural phenomena, which, if collected and digested into our vital returns, as the statist suggests, will throw considerable light on the external influences that affect health and longevity. In the Quarterly Report of Births, Deaths, and Marriages, presented by the English Registrar, contemporary returns are inserted of the average price of consols, the price and quantity of wheat imported, and the prices of beef, mutton, and potatoes; and we trust that, in due season, we shall find all those data in our Scotch Abstracts. The science of public health is becoming more and more an object of systematic investigation, and without extended collateral statistics we shall never be able to arrive at precise results. That such results are really deducible, if the field of observations both as to area and time are sufficiently wide, is no more to be doubted, than we should doubt of obtaining strict deductions from any branch of physical science. Mr Canning's trite saying, that "figures can be made to speak anything," has outlived its day. *When* the time comes for figures to speak, they can only speak one language to those capable of interpreting their deliverances.

The Scotch Law of Lunacy has acquired a new and very significant interpretation, in the recent case of Gerard *versus* Grigor. Gerard had become furious and dangerous from repeated acts of intoxication, and was ordered into safe keeping by the Sheriff-Substitute of the district. He appealed to the High Court of Justiciary, on the ground that mere violence from drink did not constitute insanity, but a majority of the judges wisely held that the *fact* of furiosity and not its *cause*, was what the law had to deal with. This finding is in keeping with the remonstrances which have all along been made by our ablest authorities in medical jurisprudence, and when the case is quite exhausted by the evidence about to be led as to Gerard's present state, we shall again recur to this important subject.

The Sheriff of Dumfries has ruled, in opposition to his Substitute, that fatuous paupers may be detained in Charity Workhouses.

It is not considered likely that Mr Headlam will persevere with his medical Bill, during the ensuing Session, as the Home Secretary, while promising individual aid, has declined pledging the Government in any way.

William Palmer, said to be a "surgeon" in Leicestershire, but whose name is not in the *Medical Directory*, has been committed for trial on suspicion of having poisoned Mr Cook, a sporting gentleman, by strychnine. It is alleged that Palmer had pecuniary motives for the murder, and that his name is suspiciously associated with the sudden death of his wife and brothers, whose lives he had insured.

Dr Andrew Smith, Director-General of Hospitals, has received a reply from Lord Panmure to the petition, in which 116 surgeons lately stated various grievances, and asked for redress. Lord Panmure cannot admit that the rate of military pay is too low, but the regulation requiring ten years of service before the higher rate of 10s. is attained, is "a fair subject for reconsideration hereafter." He cannot draw from the more rapid promotion of the executive than of the medical officers, any ground for the conclusion that it implies an undeservedly low estimate of the exertions of the latter; but "with reference to the complaint of the inferior character of some of the duties that now fall to the junior medical officers, the memorialists are informed that this ground of complaint is under consideration. His Lordship cannot, however, relax the principle which requires that the assistant-surgeons in military hospitals be prepared to do any duties, even those of dispenser, dresser, or clerk, which may be required of them by their professional superiors. With reference to leave for professional and other purposes, when it can be properly granted, it is not withheld. Leave of absence must always depend upon the calls of duty, to which pleasure or study must equally yield. Lord Panmure will not (in due season) be indisposed to consider length of service as giving a claim for retirement. The complaint of the introduction of civil practitioners to posts of authority and emolument, is entirely uncalled for. The ranks of the Military Medical Department were totally unable to supply the extensive hospitals created in the East. These establishments were only temporary. It would have been unwise and improvident to have based on them an increase of permanent establishments, to become a burden to the country in after years. The comparatively high pay of the civil practitioners appointed, many of whom gave up valuable private practices, is based on the temporary nature of their services, and furnish no ground for complaint that the regular department has been overlooked."

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXXV.

Dec. 5, 1855.—WILLIAM SELLER, M.D., President of the Society in the Chair.

The following gentlemen were elected Office-Bearers for the ensuing year :—*President*—William Seller, M.D., F.R.S.E. *Vice-Presidents*—Sam. A. Pagan, M.D.; Robert Omond, M.D.; Professor Miller. *Councillors*—Archibald W. Dickson, Esq.; David Gordon, M.D.; Daniel R. Haldane, M.D.; Alexander Wood, M.D.; H. D. Littlejohn, M.D.; John Coldstream, M.D.; Patrick Newbigging, M.D.; Alexander Keiller, M.D. *Treasurer*—John Struthers, M.D. *Secretaries*—William T. Gairdner, M.D.; J. Warburton Begbie, M.D.

I. DR ROBERTS' CASE OF SUDDEN DEATH.

The President intimated that it was expected, by some gentlemen, members of the Society, that the paper read by Dr Roberts at last meeting, on a case of sudden death, while chloroform was being administered, should be made the subject of further discussion. It was for the Society to say whether it should be discussed now, or be remitted, in some form, for discussion at some future time.

Dr W. T. Gairdner expressed his opinion that it was most desirable that the case should be noticed by the Society. It was well known that prejudices against the employment of chloroform existed in England and elsewhere, and it might tend to confirm these, were it made to appear that we in Edinburgh seemed disposed to shirk the fullest investigation of such cases. The general subject of the employment of chloroform, apart from the case of Dr Roberts, demanded inquiry. Perhaps fifty fatal cases had occurred in connection with the use of chloroform, and serious results, short of a fatal issue, had been of frequent occurrence, a case of which had come under his own observation. He believed that many gentlemen present were prepared to express valuable opinions in connection with their experience. He would suggest that Dr R.'s case should be discussed, or the whole subject be referred to a commission, so that the opinions and experience of the Society should be fully ascertained. Edinburgh has the credit of having brought the use of chloroform before the world, and we should be forward in investigating those circumstances which may interfere with its safe administration.

Dr Matthews Duncan seconded this suggestion of Dr Gairdner.

The President reminded the members that it was by a commission of this Society that the properties of chloroform were first investigated.

Dr Struthers was of opinion that the case of Dr Roberts did not call for further discussion, the *post-mortem* appearances being such that the fatal result was fully accounted for. It was very necessary for all parties, in view of such unfortunate occurrences, carefully to distinguish between coincidences and consequences. A case occurred to the late Dr Richard Mackenzie, of a man who had suffered fracture of the upper extremity, and who strenuously refused to allow of the administration of chloroform, the limb was adjusted, and the patient was left apparently well, but before Dr Mackenzie had left the house the man was dead. In this case, had chloroform been administered, it would, unquestionably, have been regarded as the cause of death.

The subject was referred to the Council of the Society.

II. FALSE MEMBRANE COVERING THE ARACHNOID—THE RESULT OF HÆMORRHAGIC EFFUSION.

Dr Skae exhibited a preparation and drawing of morbid appearances in a case which had come under his care at Morningside Asylum. The drawing exhibited a diffused false membrane extending over the upper part of the left hemisphere of the brain, and which was discovered on elevating the dura-mater. On examination it was found that it was a new formation,—a false membrane covering the arachnoid and convolutions, which were found to be in a healthy state, there were many small distinct clots of blood in this adventitious membrane. The chief peculiarity in this case was that the man had never suffered from any severe apoplectic attack, from which the formation of the false membrane could be dated. About twelve months previously he had an attack which lasted only for a quarter of an hour, in which there was loss of speech and hemiplegia, subsequently he had several similar seizures, each of which lasted only for a very few minutes—the speech was permanently affected for six months, extreme irritability of temper, and other symptoms, supervened, necessitating his removal to the Asylum, where he soon gave indications of incipient fatuity, which went on progressively increasing.

Dr S. had formerly given notes of another case to Dr W. T. Gairdner, in which similar appearances were presented, and which was laid before the Society, but there was a distinct and well marked apoplectic attack, from which they could be dated; and he had since seen a similar case in his experience, but in the present case the symptoms had been very gradual in their progress.[1]

Dr W. T. Gairdner mentioned that he had also notes of a similar case, in which a fall had been the occasion of the lesion. He would be happy to put these notes at the service of Dr Skae. Dr G. also referred to the researches of Mr Prescott Hewett on these new formations on the membranes of the brain.

III.—CASE OF MALFORMATION OF THE HEART.

Dr Wilson exhibited the heart of a child, 14 months of age, which had died of pneumonia. It was considerably enlarged, and there was partial absence of the septum between the ventricles. The child had been weakly, and gave indications of imperfect nutrition, but there was no cyanosis, and no bruit had been observed to attend the action of the heart.

Dr W. T. Gairdner remarked, that the preparation illustrated a law, which had been observed by Dr Stille of America, that cyanosis only occurred in such cases when there was contraction of the pulmonary artery, as compared with the aorta, which did not exist in this case.

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[1] M. Bayle, in his *Traité des Maladies du Cerveau*, pp. 250–305, details twelve cases of a similar kind, accompanied, as in the present, with symptoms of general paralysis, and in several of which there was no apoplectic or congestive attack to indicate the occurrence of a hæmorrhagic effusion.—(*Note by Dr S.*)

Dr John Struthers mentioned a case which had come under his notice, which was an exception to the law alluded to by Dr Gairdner.

The preparation was remitted to Dr Haldane and Dr Struthers for examination, and to report to the Society.

IV.—ON DILUTION AS A PRINCIPLE IN THERAPEUTICS. BY BENJAMIN BELL, ESQ., F.R.C.S.

(*This paper appears in the present number of the Journal.*)

Dr Alexander Wood thought that the Society should not allow the carefully prepared paper, which Mr Bell had just read, to pass without making it the subject of discussion. It was quite certain that, in times not long past, it had been customary to employ monstrously large doses of some medicines. Dr Elliotson had recorded that it was customary for the nurses, each morning, to shovel away the carbonate of iron, which had passed during the night from the bowels of patients, to whom it had been administered for the cure of chorea. The employment of such extravagant doses was equally objectionable on economical as on scientific grounds. Some of the views enunciated by Mr Bell, however, required to be confirmed by further observations, before they could be accepted. It had not been proved, for instance, that the employment of certain remedies in the treatment of some diseases, was to be limited by the quantity of that remedy which entered into the normal constitution of the fluids or solids of the body; or, that the mere supply of ingredients which were found to be in deficient quantity in the blood, was to be regarded as a cure for that condition and its consequences. In anæmia, it was evident that there was much more involved than the mere absence of iron from the blood. So, in the treatment of erysipelas by the tincture of muriate of iron, it had not been proved that the curative action of that remedy was the result of the local action of the iron on the diseased capillaries, as Dr W. understood Mr B. to hold; the quantity of water in which the iron was exhibited, may have had no small share in producing the favourable change which Mr B. had observed to follow the use of this remedy. Before accepting Mr Bell's views of the superior efficacy of small doses of iron, in the cure of erysipelas, as the ground for adopting the practice, we would require to compare it with the effects of large doses of water alone; of large doses of iron, largely diluted with water; with small doses of iron without water; and with the natural course which was followed by the disease without any treatment. One circumstance especially, seems to have been overlooked by Mr B., in explaining the action of small doses of certain remedies; it was a well ascertained fact, that most remedies had a determinate and specific action on particular organs, so that it was not necessary to assume that they required to be equally diffused through the whole fluids of the body, before producing their effects. In the case of mercury, for instance, in whatever way it was administered, it was found to produce its action on the salivary glands; so, in the specific action of belladonna on the eye, and of colchicum, on the membranes of the brain. Dr W. believed, too, that Mr Bell had over-estimated the influence of the diffusibility of terebinthinate applications in the cure of rheumatism. He was of opinion, that simple counter-irritation was sufficient to explain the effects of these remedies, he had observed equally favourable results to follow the employment of stimulating liniments, into the composition of which turpentine did not enter. In explaining the several actions of common salt, in its varied forms of administration, as depending on the degree of its dilution, he thought Mr B. was at fault also. It was known that there were certain salts, which did act on the kidneys, on the bowels, or on the skin, according as certain conditions were attended to; and these results were not dependent merely on the extent to which they were diluted by a watery medium.

Dr W. T. Gairdner regarded this paper, like all the other productions of Mr Bell, as a remarkably suggestive and valuable essay. It was just such a paper as the Society required—supplying materials for thought, which would be useful in practice. Dr G. had, for some time, been verging towards the opinions presented in Mr Bell's paper. In employing iron as a remedy, he had found the best results from the use of the sulphate, in doses of two grains, diffused in the daily drink of the patient. In using the saccharated carbonate of iron, however, he had found it necessary to continue the exhibition of large doses, much of the remedy, he believed, being necessarily lost by stool. The Society was familiar with the observations of M. Trousseau, on the decided effects of very small doses of calomel: exhibited in the 20th of a grain at very short intervals, it was found that the constitutional effects of the remedy were produced as speedily, and much more safely, than by the exhibition of larger doses. Dr G. had not been able to satisfy himself that the general effects of mercury were as certainly produced under this mode of its administration as were represented by M. T. He believed, however, that it was the safest, if not the most sure mode, of securing the specific effects of mercury on the system. Dr Gairdner was of opinion that Mr B.'s views of the therapeutic efficacy of minute doses did not hold good in connection with tartrate of antimony. His experience led him to believe that the production of its physiological effects upon the system were intimately connected with its peculiar action in pneumonia. At Geneva, in 1852, at a meeting of a Medical Society there, he heard it stated, that the waters in the valley of the Isère, which were used for ordinary purposes by the peasantry without any observable results, and which contained only a very minute quantity of iodine, were yet very valuable as remedial agents in cases in which the employment of iodine was indicated. Dr G. agreed with the statements of the paper, as to the advantages attending the exhibition of remedies in a diluted form, but hoped that he was not correct in supposing, as he did, from the general tenor of the paper, that Mr Bell meant to say that any real increase in the strength of the remedy resulted from its dilution with water.

The President desired to guard against the possibility of too much diminishing the doses of remedies; in the use of quinine, it was observed that its power, in arresting the course of ague, depended on its exhibition, in what would be regarded as large doses.

Dr Skae stated, that the only part of the communication with which he did not cordially concur was its physiology. The author assumed in his reasoning that all medicines acted on the organ affected by being carried to it in the blood. Although it was undoubtedly true that a great many of our most active medicines could be detected in the blood, and in the tissues of the organs acted upon, by chemical analysis, yet it was doubtful whether, in any case, they produced their physiological effect by being brought in this way into actual contact with the organ. The extreme rapidity of the action of some agents was incompatible with this theory of their *modus operandi.* Dr S. cited prussic acid and croton-oil in illustration, pointing out that the instantaneous operation of the one upon the heart or spinal cord, and of the other upon the intestines, was inexplicable on the supposition that they required to be conveyed to these organs by the circulation before producing their effects. Medicines and poisons probably acted only on the peripherous extremities of the nerves. and through the nerves upon the organs specially affected. He thought Dr Wood's physiology, which would attribute to the organs affected a special power of attracting the medicinal agent to them, still more objectionable.

Dr Struthers remarked that it was difficult to reason upon many of the considerations which had been adduced. It was most necessary to have such facts clearly defined, and ascertained to be really facts. Belladonna was said to act specially upon the eye; but that was ascertained because the textures of this organ were transparent, and it was possible to see its effects upon the iris. It may act on other parts of the system. Some parts of the internal ear may be as susceptible of its action as the iris, but this, of course, is not seen. Before joining in the depreciation of large doses of medicines, he was disposed to ask the reason why they had been had recourse to at all. It may be wrong to conclude that, because large doses are employed, they are therefore injurious, or even unnecessary.

Mr Bell did not expect that his paper would have elicited so many interesting observations. It had been intended as chiefly suggestive in connection with the employment of metallic remedies. He was not at all of opinion, as seemed to be supposed by Dr Gairdner, that the strength of the remedy was increased by dilution; he only believed that the medicine was thereby rendered more suitable for absorption, and therefore more likely to operate upon the disease for which it was administered. In connection with the value of the tincture of the muriate of iron, largely diluted, in erysipelas, he was quite sure that it had a very decided and direct action on that disease. Since it had been introduced to the notice of the profession by the observations of Dr Hamilton Bell, he had employed it frequently, and sometimes after other remedies had been tried without any good result, and the effects were most satisfactory and immediate. As to the origin of the practice of giving large doses of remedies, as alluded to by Dr Struthers, Mr B. thought it was a natural course to follow when smaller doses had failed to do good; but it was to be remembered, that possibly the failure depended, not on the smallness of the dose, but on the wrong remedy having been administered.

V.—CASE OF HÆMORRHAGIC DIATHESIS IN WHICH THE BLEEDING FROM THE GUM WAS ARRESTED ONLY BY EXTRACTION OF THE TOOTH IN ITS IMMEDIATE VICINITY. BY JOHN R. MILLER, M.D., H.E.I.C.S.

(*This case appears in the present Number of the Journal.*)

Dr Struthers regarded the case as interesting, but could not discover that it threw any light upon what was to be the practice in future in similar cases. It certainly did not warrant the adoption of extraction of the tooth as the rule to be followed in such cases; for it is not proved that the removal of the tooth was the cause of the cessation of hæmorrhage. He was at a loss to know what had induced Mr N. to recommend this operation. It seems to be the very last thing to be thought of in cases of hæmorrhage from the gums.

Dr Dycer mentioned to the Society that he had seen the instrument invented by Dr Reid (an account of which will be found in the *Monthly Journal* for January 1847), for arresting hæmorrhage from the gums or socket of the tooth. The instrument had been shown in the Great Exhibition in 1851, and seemed admirably fitted, by the arrangement of straps, etc., to effect the purpose for which it is intended. It did not seem to be known to the gentlemen in charge of the case just narrated, in which it might have been useful.

Dr Wood could testify to the satisfactory results of the employment of Dr Reid's instrument, in a case which had come under his own observation. Dr W. had occasion to be interested in such an instrument, having himself, on one occasion, suffered from alarmingly excessive hæmorrhage from the jaw, after the extraction of a tooth, part of one of the fangs of which had been broken off, and left in the alveolus. He had Dr Duncan and Mr Syme in attendance upon him, and was under the necessity of retaining a splinter of wood in the socket for three days. It was remarkable that some years afterwards the remaining portion of the tooth was removed without any more than the ordinary amount of hæmorrhage following. The excessive hæmorrhage, in his case, was not easily accounted for, inasmuch as he had no tendency to the hæmorrhagic diathesis.

Mr Edwards wished to know whether it was ascertained that the hæmorrhage was from the cavity or from the neighbouring surface?

Dr Miller replied that the source of the hæmorrhage seemed to be in the socket; but the position of the tooth, which was at last removed, prevented the exact site being ascertained. In reply to Dr Struthers, he said that the object which Mr N. had in view in recommending the removal of the tooth, was to be able to apply pressure over the source of the hæmorrhage. The condition of the patient had become one of extreme danger, and there was no other course open.

SIR GEORGE BALLINGALL.

Sir George Ballingall, whose loss has excited such general regret among the profession, was the son of the Rev. Robert Ballingall, minister of the parish of Forglen, Banffshire, and was born at Forglen on the 2d of May 1780. He received the early part of his education at the parish school of Falkland, Fifeshire, and afterwards attended four literary sessions, at the University of St Andrews; at which town he also served an apprenticeship to the late Dr Melville. In 1803 he commenced his medical studies at the University of Edinburgh, and was for some time assistant to the late Dr Barclay, the well-known lecturer on anatomy.

Sir George entered the army in May 1806, as assistant-surgeon of the second battalion of the Royal Scots or First Royals; which regiment he accompanied to Madras, either in 1806 or during the course of the year following. The late Duke of Kent was the colonel of this regiment, and his Royal Highness felt interested in, and showed the young surgeon great kindness, not only during his connection with the first Royals, but up to the time of his death.

In 1811 Sir George volunteered into the 22d Dragoons, and accompanied the expedition against Java, and was present at the capture of that island in August of that year, for which service he received a medal. He returned to Europe in 1814, and in 1815 he joined the army of occupation in Paris, as surgeon of the 33d regiment of foot.

In 1818 he retired on half-pay and engaged in private practice in Edinburgh. He was appointed by the Crown in 1823 to the then vacant chair of Military Surgery in the University of Edinburgh, which he continued to occupy until the period of his death. His formal connection with the army ceased in 1831.

On the accession of William IV., he accompanied a deputation from the Senatus of the University of Edinburgh, to present a local address to the King, on which occasion he was raised to the dignity of knighthood.

Sir George was surgeon to the Queen and Duchess of Kent in Scotland—consulting Surgeon to the Royal Infirmary—a Fellow of the Royal College of Surgeons, Edinburgh—a Fellow of the Royal Society—an Honorary Member of the Royal College of Surgeons in Ireland, and a Member of the Medical Societies of Paris, Vienna, St Petersburg and Berlin.

Throughout his long career, Sir George Ballingall enjoyed the confidence and esteem of the heads of the different public departments with which he was connected; a circumstance due not only to his professional knowledge and skill, but also to his upright and gentlemanly deportment in private life. Of this respect he possessed many substantial tokens, having received a splendid diamond ring from the late Emperor Nicholas of Russia, and also a silver dinner service from the medical officers of the army and navy, and of the East India Company's service. His numerous pupils in active duty in all parts of the world will, we are persuaded, join with his colleagues, and professional brethren in Edinburgh, in lamenting the loss of one so able and consistent in all his dealings.

Besides his Lectures on Military Surgery, and an able monograph on the Construction of Hospitals, Sir George frequently contributed to the medical periodicals; and we look back with satisfaction to the papers with which he so promptly enriched the pages of the present Journal, whenever any question in military surgery called for the exercise of his experienced pen.

ON THE MODE OF COMMUNICATION OF CHOLERA.

To the Editor of the Edinburgh Medical Journal.

Sir,—Dr Alison has called attention in the last number of the *Journal* to the opinions and facts of Dr Budd of Bristol, respecting the communication of cholera by dejections, and I shall be obliged if you will allow me to make a few additional remarks on the subject, partly on my own account, but chiefly to lay the matter before the reader in what I conceive to be its true aspect. I arrived at the conclusion in the latter part of 1848, that cholera is communicated by the evacuations from the alimentary canal, and in August, 1849, I endeavoured to establish this point by a number of facts, which I published in a pamphlet, "On the Mode of Communication of Cholera." In the following month, Dr William Budd published a pamphlet "On Malignant Cholera" in which he expressed views similar to my own, and made a full and handsome acknowledgment of my priority in more than one place in his essay. I feel sure that Dr Alison was not aware of these circumstances, or he would have mentioned my name in connection with his subject.

In his recent papers in the *Association Journal*, Dr William Budd attributes a much greater range to the action of the cholera poison through the air, than I am willing to admit, and if he can establish this point, the credit of it will be due to him. In my opinion, the cholera poison only produces its effects through the air when carried by insects, or when the evacuations become dry, and are wafted as a fine dust. I have on several occasions, since the autumn of 1849, alluded to the great mortality from cholera amongst the mining population of this country, as an instance in which the morbid matter of the disease is swallowed with the food. As the miners stay in the pits eight or ten hours at a time, they always take food down with them, which they invariably eat with unwashed hands, and without knife and fork. There are no privies in the pits, and Dr Budd himself alludes to the foul state of the latter. When a case of cholera or choleraic diarrhœa occurs in a pit, it must therefore almost of necessity happen that the hands of many of the workmen would be soiled by the evacuations, minute quantities of which would be swallowed with the food. Dr Budd has alluded to the food of the pitmen being supplied from very different sources, and prepared by different hands; but the hand by which the food is contaminated is as often that from which it is eaten, as that by which it is prepared. This mode of taking minute quantities of poison was pointed out by Dr Christison long ago as being the way in which house painters of uncleanly habits, sometimes acquire lead colic.

In the very interesting cases which Dr Budd has related of propagation of cholera in the ill kept privies of a large workhouse, the same mode of communication of the disease could not fail to exist. The seats would be soiled by the cholera discharges, and the paupers who came afterwards would have neither the desire nor the opportunity to wash their hands after each visit to the place.

. . . .

The mode of communication of the disease which I am advocating also, explains many circumstances in the history of cholera, which could not be explained by effluvia from the evacuations. I allude to the spreading of cholera in the crowded habitations of the poor, who cook, eat, and nurse the sick in the same room, and pay little attention to cleanliness, and to its not spreading in the houses of the well-to-do; also to the escape of the medical and clerical visitors, who do not eat or drink in the room of a poor cholera patient, and who carefully wash the hands when required, whilst the social visitor who comes to see the patient, or to attend his funeral, often suffers.

. . . .

Dr Budd entirely agrees with me that the cholera poison is produced only in the alimentary canal, and acts only on that canal, which it reaches by being swallowed. He enforces this point by the same arguments that I had used, adding indeed some additional illustrations; so that in fact there is no difference between us respecting the essential mode of communication of the disease, but only as to the extent to which it is communicated through the air.

. . . .

I would gladly say much more on the pathology of cholera as bearing on the mode of its communication, but I am afraid of making this letter too long. I will only say in conclusion that, should the views I first promulgated be exactly correct, the extension of cholera may be more easily prevented than it would be if the slight modification of these views introduced by Dr Budd were true. In the former case all that would be required to prevent the disease would be such a close attention to cleanliness in cooking and eating, and to drainage and water supply, as is desirable at all times.—I am, Sir, your obedient servant,

John Snow, M.D.

18 Sackville Street, London, 14*th Dec.* 1855.

[We regret that from want of space, we have been compelled to abbreviate Dr Snow's letter. The important points, however, have been retained. His theory that it is chiefly or almost exclusively by *swallowing* that the poison of cholera is taken in, can scarcely be supposed, notwithstanding his arguments, to be the usual mode of admission of the poison in the numerous cases which he, as well as Dr Budd, seems to suppose to have extended by the people using the same *privies.* Dr Alison, in former papers, in which he maintained the contagious property of cholera, has, however, expressly said that he gave no opinion as to the *mode* or modes in which the poison, thrown off by the human body, may be taken into another—only as to the question whether, in one way or another, it may be so thrown off and may be so taken in, and the *epidemic extension* be thus affected; and, therefore, if as Dr Alison believes, there are different modes of extension, multiplication and absorption of the poison, demanding a certain multiplicity and variety of practical precautions—this will be all in favour of the only practical opinion Dr Alison has given on the subject.]

VARIETIES.

Foreign Honours.—The Sultan has conferred the third class of the imperial order of Medjidieh on Dr Sandwith, with honourable mention.

—Foreign Appointments.—Dr Ludwig, Professor of Anatomy and Physiology at Zurich, has just been appointed Professor of Physiology and Zoology to the Medico-Chirurgical Academy of the Emperor Joseph at Vienna.

Dr J. Vogel, Professor of Clinical Medicine at Giessen, is appointed to the same Chair in the University of Halle, in Prussia.

Dr Felix Niemeyer, of the Hospital of Magdebourg, has been called to the Professorship of Clinical Medicine in the University of Greifswald (Prussia).

By decree of the Emperor of Austria, Dr Rigler, Professor of Clinical Medicine at the Turkish University at Constantinople, has been appointed to the same Chair in the School of Medicine at Grätz, in Austria.

The Academy of Sciences proceeded, at its *séance* of the 3d of December, to nominate a Corresponding Member to the section of Medicine and Surgery. At a preliminary meeting, Marshall Hall had been placed first in the list of candidates; Rokitansky, second; Professor Christison of Edinburgh, third; M. Riberi of Turin, fourth; and Chelius of Heidelberg, fifth. Of 41 votes, Marshall Hall secured 39, and was declared duly elected to the seat vacant in consequence of the death of Fodera.—*Gaz. Médicale,* Dec. 8, and *Gaz. Hebdomadine,* Dec. 7.

At an extraordinary meeting, of the 25th November and 2d December, the Professors of the College of France agreed that the order of names in the list of presentees to the vacant Chair of Majendie should be as follows:—1st, M. Claude Bernard; 2d, M. Longet.—*Gaz. Médicale,* Dec. 8.

Dr Horace Green has resigned the Professorship of the Theory and Practice in the New York Medical College, but will lecture on the Diseases of the Thoracic Organs. Dr Cox has been appointed to the vacant Chair.

Drs Channing and Bigelow have resigned their Professorships at the Harvard University, and are succeeded by Dr Storer in the Chair of Obstetrics, Dr Clarke in that of Materia Medica, and Dr Shuttuch as Lecturer on Clinical Medicine.

Elisha Bartlett, M.D., died at his residence in Smithfield, R. I., July 18, at the age of 51 years. Dr Bartlett was well known as an eminent medical writer. His most celebrated work is the treatise on typhus and typhoid fevers. He was Professor successively in the Berkshire Medical Institution, the Vermont Medical College, the Transylvanian College at Lexington, Ky., the Medical College at Baltimore, and, finally, the College of Physicians and Surgeons at New York.—*Charleston Medical Journal,* Sept. 1855.

The *concours* lately opened for the vacancies of Hospital Chemists, in consequence of the death of M. Quevenne and the resignation of Professor Bouchardat, has terminated by the nomination of M. M. Roussel and Leconte. Dr Regnauld, *agrégé* of the Faculty of Medicine, replaces M. Quevenne at *la Charité.*

Dr Ernest Cloquet.—We read in a letter from Teheran, dated November 1, and published in the *Moniteur,* that this gentleman, physician to the Shah of Persia since 1846, has just died, after severe suffering, the victim of a deplorable accident. He drank a large quantity of tincture of cantharides, which he had mistaken for brandy. M. Cloquet had been solicited by the late King Mehmet Shah from the French Government, who left the choice in the hands of the Academy of Medicine. M. Cloquet received a considerable salary, about L.1400. He had married an Armenian lady in July last. His remains have been temporarily placed in the church of Vanek, a little Armenian village in the neighbourhood of Teheran.—*Gaz. Hebdom.*, Dec. 14.

M. Müller.—The distinguished physiologist of Berlin only escaped drowning the other day by his presence of mind. He was returning from Norway, when the steamer in which he was came in contact with another vessel and foundered. M. Müller owed his safety to his skill in swimming.

In consequence of the death of M. Valleix, the following changes have taken place in the hospital staff of Paris. M. Becquerel passes from the Hôpital Riboisière to La Pitié, and M. Herard, of the Hôpital Saint Antoine, takes his place. M. Moutard Martin is transferred from the Institute for Nurses to the Hôpital Saint Antoine, and is succeeded by M. Beugeron, of the Hospice de Rochefoucauld, while M. See, of the Bureau Central, takes his place.—*Gaz. Hebdom.*

The total number of inscriptions at the Faculté de Médecine at Paris, from the 2d to the 15th Nov. 1855, was 966. Last year, at the same time, the number was 964. The number of first inscriptions this year is 180, while last year it was only 151.—*Gaz. des Hôpitaux,* Nov. 24.

Carlyle on Medicine.—Oh, my brother, be not a quack! If, in the phrenzy of this modern locomotion, any living man be overtaken by the mishap of a broken leg, chirurgeon-wise bring the twain splints into apposition, and let osseous sympathy do its proper work, hindering it not. But mark me, brother, lift thine hand only when it is a living man who complains. When a wearied, struggling, heart-sore son of Adam turns himself to the wall, like, but with more intent than, the crowned Hezekiah, disturb thou not his departing agonies with thy wretched ointments, gallipots, and other abominations that stinketh. That man is wearied with this terrene, and its losses and its crosses, and bethinks him to flee away and be at rest in a better and far off country, and thou but troublest him in his upward flight thither. It is, without controversy, the saddest thing in the world, and beyond remedy that is visible, that when humanity's plague spot is ambition ungratified, the leech says, Be of good cheer, lo! here is Opodeldoc—or when the inmost soul is racked by the frailty named woman, said body-cobbler notes down on paper, six inches by four, certain cabalistic characters which none but 'pothecaries can interpret, but which has Quinine for its refrain,—or when the victim sees nothing but the blackness of darkness in his ledger, the guinea adviser cries peace, peace, even Rhubarb is at hand! Miserable comforters are ye all! When this universe was younger by the matter of three hundred years, William Shakespeare sorrowfully asked you and yours, If you really could minister to a mind diseased, and since then you have groped about in nature's laboratory till you have educed (or if you did not, Harvey for that matter) the dynamics of the blood, purification by cow-pock, and also various compounds tending to insensibility; but mind, mind eternal, immortal, invisible, is as far off from your unguents as ever. It will none of you. Bethink you now, my brother, and let us reason together. If a flower be pluckt from its stem, and flung on Macadam's high-way, will galvanism, eye-salve, mandragora, or other pestilencies, restore its green glitter, its holy tints or its sweetest flavour? Yet will you try your sorry craft on unstrung woman, and seek to bring her withered heart into unison with the spheres. You cannot restring a poor flower, with its simple mechanism of sap ascending and descending in curious capillaries, but yet you will experiment, and, good sooth, persist, till tipstaff, Death, has played you off the board,—you will persist, I say, in playing with acidities in the bag of the stomach, unmindful of that great heartburn which is drying up the fountain of life, of tears, of joys, and of sorrows. Cæsar, Cromwell, Napoleon, these and other notables, you will preach to them your gibberish about starch corpuscles, histologies, and other entities applicable truly to potatoes, corn, and esculents many, all of the earth earthy; but the notables, I say, are messengers from the great intelligences above (not the less it may be that they themselves know not that fact to the full extent, at least), let *them* alone I say,—they have a mission and a destiny to solve that you, with your pot-bellied vessels of coloured water, lighted behind with gas-jets, dream not of. When *that* is fulfilled, but not till then, Francis Moore, physician, and other almanac celebrities, saying what they list notwithstanding, they will, in the fullness of time, be exhaled and go thence. Stand thou then aside, for the eagles are on their way to the Mountains of Spices. The thing is not to be borne. A soul from one eternity flits across this poor geological crust on its way to another eternity, and instead of reverently lifting its eyes and waving trees of palm, the poor College of Physicians counts time by seconds on a Geneva watch, and offers none other oblation than parboiled senna leaves.

NOTICE TO CONTRIBUTORS.

As it is of the utmost consequence that the Journal should punctually be ready for delivery in London on Magazine day (the last day of each month), we have to intimate to Contributors that, generally, we cannot guarantee the insertion of any article received after the 15th; and in no case, however urgent, can any paper be inserted, if put into the Editor's hands beyond the 20th of any month.

We would also impress on our friends the importance of brevity, as extended or divided communications are less likely to attract the attention of the reader, than if concentrated into one article of moderate dimensions.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Observations on Croup: Special Diagnosis.* By CHARLES WILSON, M.D., Fellow of the Royal College of Physicians, Edinburgh.

IN attempting an exact diagnosis of the disease of croup, we can have little prospect of arriving at a sound result, unless through the sufficiently obvious, yet often disregarded, method of comparing only, in as far as possible, those things which can of themselves legitimately admit of comparison: those, namely, which have arisen under parallel circumstances of life, habits, climate, and exposure, and which have existed under other conditions nearly identical, so as to have been seen, correlatively, under aspects closely approximate. Facts, as examined by different observers, and in different, and often remote and dissimilar situations, can rarely present that uniformity of real entity, or even of conception, which renders their collation easy, or is necessary to their accurate appreciation. A first resource, therefore, must be to the guidance of individual observation; and upon that I still propose to attempt to found the tenour of my remarks. It is but a truism to add, that it is only as a second resource, and as supplementing, extending, confirming, or testing the other, and thus by another and a subsequent mental process, but one never to be neglected, that the experience of distant observers can be made to acquire its full value in relation to that of the individual, and science is finally enriched, alike by the confirmation or the contrast.

It could not be otherwise than matter of regret to the Scottish physician, that the term *Croup* should now ever lose its place in medical literature; into the established nomenclature of which it has been received by us, and adopted, more or less exclusively, by every civilized country. But, to ensure its position there, whether as a kind of national trophy of our success in medical observation, or as a term significant in itself, it would be well that its use should be carried back more closely to its original application, from which we may remark a growing inclination to divert it. The worth of a term in science depends upon the uniformity and certainty of its employment, and upon the consistency of the idea which it is at all times designed to represent. The detriment to the progress of knowledge, inflicted through a practical disregard of an axiom so obvious, which has been laid down more distinctly by none than by Arnauld and by Locke, has been felt nowhere more severely than in the study of medicine. Needlessly burthened by a host of synonyms, we have further suffered many of these to waver into uncertainty of import; and men often differ in the results of their judgments, solely because they differ in the conceptions which have accompanied the language of their reasoning. Thus, there can be no doubt that the original meaning of the word *Croup* implied merely a certain alteration of the sounds emitted by the human voice: of a special description, and occurring in only a few broadly marked forms of disease. The term, in its application, was afterwards limited, but no farther limited, than to characterize a particular group of symptoms, chiefly affecting children, the leading phenomenon among which was this peculiar modification of the voice, whether as produced during the cry, or utterance, or the laborious respiration of the individual affected. It could have no exclusive relation to the exudation, or false membrane, which has been found to form within the larynx, in a large proportion of instances, and to exist in connexion with the class of sounds referred to; because this relation, or the possibility of its occurrence, was not discovered at the time when the term was first transferred from popular usage into our medical nomenclature. It is therefore an arbitrary restriction, as well as a departure from its original employment, to confine the term of Croup to cases accompanied by membranous exudation; or to designate these exceptionally as true croup, while to cases where this exudation was either absent, or remained undetected, the application of the term was denied, or held as spurious. But, if it be too absolute to connect inseparably the idea of croup with that of pseudo-membrane, even while associated with the existence of disease of the larynx, it becomes a ridiculous error to carry the abuse farther, and so to involve the notion of croup with that of exudation, as to speak of croupose pneumonia, or croupy inflammation of the pleura or peritoneum, or croup of the kidney or uterus; unless we could attribute to these organs, or tissues, the power of emitting the modification of sounds which is really implied under the designation. As a similar laxity of language, carried into all the departments of medicine, would rob our science of its precision, and immeasurably increase difficulties which are already more than enough for the keenest intelligence, it is one to which no amount of habit should be sufficient to reconcile us.

The original use of the Scottish word Croup is well illustrated by its evident etymology: though certainly not as this has been given by Dr Cheyne,[1] obviously a better physician than a philologer, who derives it from the French *roupie*; a term which signifies the *mell-drap* or *mill-drap* of the Scotch, or the *stiria nasi*[1] of classical language.[2] Its first appearance in our medical literature, in as far as I know, is in a letter addressed by Dr Patrick Blair to Dr Mead, dated "Cowpar of Angus, July 6th, 1713; in which the writer, discussing more especially Pertussis, speaks of "a certain distemper with us, called the *Croops*, with this variety, that whereas the chink-cough increases gradually, is of a long continuance, seizes in paroxysms, and the patient is well in the interval, this convulsion of the larynx, as it begins so it continues, so violently, that unless the child be relieved in a few hours, 'tis carried off within twenty-four, or at most forty-eight hours. When they are seized they have a terrible snorting at the nose, and squeaking in the throat, without the least minute of free breathing, and that all of a sudden, when perhaps the child was but a little time before healthful and well."[3] The orthography of Blair thus marking the usual pronunciation, we find the word, at later periods, uniformly written as *Croup*. For the origin of this term, we justly look to a root which is common to the whole of the Teutonic tongues: and which appears, for example, in the Icelandic *Hròp* (*clamatio*); in the Anglo-Saxon *Hreopan* (*clamare*), and in *Crâvan*, *præt. creóv*, (*cantare instar galli*); in the Gothic *Hropjan*, *Hropi* (*clamare*, *clamor*); and in the old German *Hrôf* (*clamor*); the letters *h* and *c*, and *v*, *f*, and *p*, being readily interchangeable in these kindred languages. But it is to the Frisian element of our language, the importance of which is becoming daily more recognized by philologists, and to where we find it now most directly represented, that we may refer for the term the closest allied to our primary signification of Croup: the modern Dutch word *Geroep* (*cry*) being pronounced so as to be as intimately analogous in sound, as it is likewise in signification. The North of England, and Scottish, word *roop* (hoarseness) will suggest itself as referable to the same origin. We are thus carried back to an era, prior to that in which the Anglo-Saxon, Frisian, and Dane parted from their common stock; and long prior to the successive periods at which they settled in this country. A term so ancient, so expressive in itself, and so thoroughly and specially an appropriation of our medical literature, ought not to be endangered, by being allowed to swerve from its original signification into meanings remotely derivative.

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[1] *Essays on the Diseases of Children,* 1801: *Essay I.,* Croup, p. 14.

Under the term croup, therefore, will be properly involved merely that association of peculiar sounds of the voice, cough, and respiration, which embraces the most prominent features of the disorder. In a nosological description of a disease, which is to serve for the purpose of its diagnosis during life, it is evident that we must depend upon the recognition of such phenomena as are then distinctly appreciable, and not upon those which are only to be revealed by an issue which we seek to avert. As the false membrane in the larynx is neither invariably present, nor, where present, constantly ascertainable, in croup, it can form no essential element for distinguishing the affection; even if those who insist upon it as a necessary basis were not frequently compelled to wait for death, to be assured as to the question of its existence. But the presence of a slight degree of tumefaction of the fauces and tonsils, characterized by a vivid red colour, as, in my experience, an inseparable attendant upon croup, and one always easily recognizable, may be safely allowed to be added to the peculiar sounds, and completes the definition in as far as its indispensable components are concerned. Adopting this broad construction, the diagnosis of croup, and its allied diseases, appears to be of easy attainment; and yet there is nothing in medicine which has presented a theme for greater discussion, and wider variety of opinion. Doubtless, the materials for a perfect diagnosis are to be found everywhere, scattered through the writings of the many able physicians who have been attracted to the subject, through its interesting nature: but in none is the result so wholly satisfactory as to have silenced controversy, chiefly because truths, in themselves essential, are either wholly unacknowledged by individual observers, or appear dissociated from other truths, apart from which they have neither their adequate, nor always their true, signification. One leading error has been to constitute spasm, which is here not a symptom, but an inferred condition or action, as a pathognomonic mark, to separate a so-denominated genuine from a spurious form of the disorder: and from this disjunction, too arbitrarily, if not untruly, asserted, has sprung most of the difficulties which beset the inquiry.

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[1] *It is so rendered in the Dict. Lat. Græc. Gallicum* of Sonnius, 1573: or is the "*goutte d'eau qui pend au nez*" *of modern French dictionaries.*

[2] "*Turpis ab inviso pendebat stiria naso,*
Cum flaret madidâ fauce December atrox."
Mart. *Epig.*, Lib. VII. 37, 5.

[3] Dr P. Blair, *Observations in the Practice of Physic*, etc. London, 1718, p. 92.

The only sure method of assigning to croup its proper place in pathology, is by means of a general survey of the affections of the larynx, as a prior step to that more minute scrutiny, which is to serve to render it easily recognizable as an individual disease, and to distinguish its varieties. While the character of the prevailing assemblage of symptoms evinces manifestly that they derive their origin from the disturbed functions of the larynx, and, more especially, of that delicate portion of the organization which is directly subservient to the formation of the voice, it is equally evident, from the nature and tendencies of certain of the phenomena, and from their ultimate products, that the alteration in question is, in one class of cases, strictly dependent upon a modification of the process of inflammation, or upon a hyperæmia, seated in the part, and without the precedence of which it is impossible to conceive their existence. But there is, on the other hand, another class of cases, with symptoms not less evidently referrible to the larynx, in which this material basis of inflammation is wholly wanting, both in its visible phenomena and in its ulterior products, and in which it is obviously upon a modification of the nervous forces as transmitted to the part, and upon no merely local detriment, that the disorder is founded. Hence a clear and important distinction of affections of the larynx into two primary divisions: those in which the disorder has a material organic basis, indigenous to the part; and those in which it depends upon dynamic perturbances, originating elsewhere, and communicated to an organism otherwise unimpaired. Thus we have the *organic* diseases of the larynx *(Laryngopathia organica)*, of which the type is Laryngitis, or disturbed function from local inflammation; and the *dynamic* diseases of the larynx *(Laryngopathia dynamica)*, of which the type is Laryngismus, or disturbed function from transferred irritation.

Of the *Organic* forms, taking laryngitis as a basis, we may have the disorder either in its simple condition, or complicated with the influential element of spasm. Simple laryngitis only subsists as such, when the inflammation has attained to inconsiderable degrees of intensity; or, possibly, where it remains restricted to a position comparatively remote from the glottis. So soon as the disease has reached a certain range of extension and severity, spasm becomes, in all cases, though in varying gradations, its necessary and inseparable adjunct; just as we find that spastic contractions, of more or less energy according to the sensitiveness of the organism affected, accompany every other description of inflammation in other muscular canals, and especially wherever we have the action of sphincters, or of a mechanism nearly analogous. Hence the painful contractions attendant upon proctitis, or upon fissura ani; the dysuria of cystitis, or ischuria, when the neck of the bladder is chiefly affected; the unceasing incitements to deglutition in pharyngitis, and other similar relations of easy suggestion. To this spasm, therefore, as uniform in its presence; not preceding, but following the inflammation; modifying the symptoms in a material degree; conferring upon many of them their chief characteristics; and largely conducing to their danger, we must concede the position and prominence it demands, in any attempt at classification or diagnosis of the organic affections of the larynx. Another morbid element which may be superadded, is the presence of exudation: an attendant less invariable, in any conspicuous degree, than spasm, yet habitually adduced as pathognomonic of the inflammatory form of the disorder; while the spasm has been held apart to constitute the criterion of an opposite group. We have, besides, a class of cases, standing intimately related, which are not wholly local, but which depend upon certain constitutional affections, or upon affections of parts adjoining; acute in their course, and productive of primary modifications of texture which present an appropriate basis upon which laryngitis has more or less proclivity to supervene; of which the exanthemata, and pharyngitis diphtherica, offer leading examples. Beyond these, we have another group of cases, less closely allied to our immediate subject, which have their origin in constitutional affections of a more chronic progress, as tuberculosis and syphilis: and we have, lastly, those in which the disorder consists chiefly in a substantial obstruction to the passage of the air, local in its site, and material in its nature; and extrinsic or intrinsic, or dependent either upon a foreign substance, or a neo-plastic growth. Of the *Dynamic* forms, the laryngismus may be either merely sympathetic, and concurrent with an affection of the stomach, the lungs, or the central cerebro-spinal system; or it may be the result of a mechanical compression of the nerves in their progress to the part, and at some distance removed from it, through neo-plastic or heteroplastic growths.

A synopsis of the affections of the larynx, thus broadly distinguished, may present the following arrangement:—

LARYNGOPATHIA:
- A. ORGANICA. (*With local basis of disorder*).
  - I. Laryngitis
    - (* *Protoleptica: primary affection*).
      - α. Simplex.
      - β. Spasmodica. (*Croup*).
        - 1. Mucosa.
        - 2. Œdematosa.
        - 3. Exsudativa.
    - (** *Parabasica: passing over from, or supervening upon, a prior local affection, dependent upon another disorder.*)
        - 4. Exanthematica.
        - 5. Diphtherica.
        - 6. Typhosa.
        - 7. Aphthosa.
      - γ. Dyscrasica. (*From general constitutional disorder*).
        - 1. Tuberculosa.
        - 2. Syphilitica.
        - 3. Rheumatica.
  - II. Laryngemphraxis (*obstruction of larynx*).
      - α. Polyposa.
      - β. Cancrosa.
      - γ. Stenotica.
      - δ. Extrinseca.
- B. DYNAMICA. (*With remote basis of disorder*).
  - I. Laryngismus
      - α. Sympatheticus. (*From transferred irritation*).
        - 1. Gastricus.
        - 2. Cerebro-spinalis.
      - β. Synthlipticus. (*From compression*).
        - 1. Neo-plasticus.
        - 2. Aneurysmaticus.

The simple laryngitis of children (*laryngitis simplex*) has a plainly marked identity, which at once distinguishes it from the other affections of the larynx. It is of moderately frequent occurrence, and often shews its near affinity to those severer forms of disorder, of the characteristic features of which it is, however, divested, by its prevailing cotemporaneously with attacks of croup. Thus, while visiting an infant suffering from croup, accompanied by exudation, I had an opportunity of seeing also, in the family of a gentleman in the close vicinity, three children, the youngest two years of age, affected with the milder and simpler ailment. It is, in itself, an affection of little importance, but it cannot be safely disregarded; for its evidently near alliance to more dangerous maladies suggests at once the possibility of its advancing, through a new accession of phenomena, into new conditions of hazard. In some families, members of which have shown otherwise a predisposition to croup, it is the habitual form in which a seizure from cold presents itself. It is, for the most part, attended with little or no pyrexia; the voice is moderately hoarse, or may remain unaltered; the respiration is uniformly easy, though sometimes accompanied with a feeble sibilation, the site of which is evidently in the glottis; the expectoration is not notable, or may be in small, round, tenacious masses; and the deglutition is unimpaired: but the cough is hoarse and clanging, though varying, in different cases, through a series of gradations, each of which may be a somewhat nearer approach than another to the sound of that in bronchitis. The tonsils are usually slightly tumid, red, and without traces of exudation. The child is lively, or, if there be any feverish oppression, it is trifling, and during the night only. The course of the ailment is ordinarily brief. Sometimes it passes into bronchitis; and sometimes, though rarely, and chiefly in strumous habits, it assumes a chronic character. Occasionally, I have encountered the peculiar swelling of the tonsils and fauces, so different from that of ordinary tonsillitis, an affection otherwise rare in children, with their pallid red and roughly granular surface, and the effluence of transparent, viscid phlegm, as I have already described them, yet where there was no accompanying cough, or none of any marked character. In such cases, the characteristic inflammatory affection had evidently not extended fully within the opening of the glottis.

It is sufficiently manifest, that the distinction between this simple laryngitis, and croup in its perfect form, lies less in any really essential diversity, than in varying degrees of intensity of an individual morbid process. Where the qualities of an action are changed, we cannot refuse to admit that the apparatus for its development has been subjected to modification. In simple laryngitis, the altered tone of the cough or voice, taken in connexion with the tumid and red condition of the fauces, denotes at once a local and material basis of the modification in question. But, to convert the disease into croup, a more distinct localization of the morbid action, and in a greater degree of intensity, is required, in order to produce a new element of suffering, which then arises as at once a fact and a necessity. We have seen that inflammation, of any decided degree of severity, nowhere attacks orifices provided with a muscular apparatus for their closure, without the induction of a spastic condition of the parts implicated. That adjustment of nature, which, in the state of health, and under a transient irritation, was subservient either to the normal discharge of a function, or to the protection from a casual injury, becomes in disease, and under a more permanent cause of irritation, an important constituent of a morbid process. It is this aggravation of the intensity of the inflammation, with the spasm of the muscles attached to the glottis which it necessarily induces, as the result of a common law, that merges laryngitis, as a simple existence, into laryngitis complicated with spasm. To the modifications of the sounds of the voice, which, in the former, indicated scarcely a hinderance of the breathing, but a mere alteration in the vibratory properties of the vocal chords, is therefore now superadded another class of sounds, accompanying more immediately the acts of the respiration, and giving evident tokens of obstruction; yet this varying so remarkably in degree, at alternating periods of an individual illness, as to prove that it cannot depend exclusively upon a cause which does not admit, not only an intermittent action, but an action promptly convertible between wide extremes of energy and repose. Thus spasm, in this description of structure, though it may exist independent of inflammation, is so far from being a distinctive phenomenon, entitling us to refer a disease to another than an inflammatory type, that it appears rather, for the most part, of the very essence of inflammation. To the combination, therefore, of inflammation and spasm we owe the existence of genuine croup; and we reject at once the designation of spasmodic croup, in the sense in which it has been customarily employed and restricted, as one which has perpetually misled, and which is insufficient to characterize an opposite form of disorder: while we adopt unhesitatingly, on the other hand, that of *Spasmodic Laryngitis*, to denote inflammatory croup generally; or that more advanced condition of inflammation, in which an accession of spastic action has given new features to the disease, and stamped upon it a new identity.

In every form of malady, we may have already variations enough in outline, and gradations enough in intensity, from prevailing differences in age, sex, constitution, and peculiar relations of climate and condition, which have preceded its attack: but when we add to these the numberless diversities, which, as in the group now before us, may arise from the interchanging actions of two such elements as inflammation and spasm, operating too upon an organization of singular delicacy, it becomes obvious that it must be impossible to cast all the varieties rigidly under a single category. More or less of spasm, from inherent differences of nervous irritability; more or less of mucous secretion; more or less of submucous infiltration; and more or less of exudation, or pseudo-plasm, with variations in its site, and greater or smaller degrees of its consistency, and we have different manifestations of the morbid action. We have, therefore, different modifications of Spasmodic Laryngitis, which glide into each other, or depart from each other, by infinite gradations; but we have examples, not the less, which serve clearly as the type of each, around which the others range themselves in more or less close affinity. These types of Spasmodic Laryngitis, whose distinction from each other involves the proper, immediate, or specific diagnosis of the disease, may be classed as the *mucous*, the *œdematous*, and the *exudative* forms of the disorder; the two first being of subordinate importance, and forming only a part of our general inquiry, but the latter constituting its principal object.

The class of cases which have been observed by me, and which I have judged capable of being arranged under the head of Mucous spasmodic croup, (*Laryngitis spasmodica mucosa*) are not of frequent occurrence. Like simple laryngitis, they are chiefly prone to appear under circumstances which favour likewise the development of the exudative form. They usually advance more abruptly into a first paroxysm than the more dangerous disorder, and therefore appear more sudden in their origin, though a preliminary stage is never wholly absent. The pyrexia is moderate; the hoarseness is less decided, and never, or very rarely, approaches to aphonia; the cough, though harsh and rough, has an admixture of a bronchitic character; the exspuition, appearing to be rather a quantitative increase of the natural secretion above and near the glottis, than a qualitative change in its constituents, is scanty, viscid, transparent, and uniformly without curdy matters or membranous shreds; the tonsils are tumid and red, but to an inconspicuous extent only, and invariably without traces of exudation; and the deglutition is unimpaired: while, in the intervals between the paroxysmal attacks, though the voice remains persistently altered, the cough becomes rounder in its tones, and approaches still more closely to the bronchitic character, and the remissions are therefore more complete and obvious than in the exudative form. It is as the sounds of the cough approximate to, or recede from, those of bronchitis, that the character of the disease becomes established, and its danger aggravated or diminished. As to the respiration, it has appeared to me that, in this variety, the intensity of the suffocative paroxysms is usually great in relation to the degrees of hoarseness, when contrasted with the analogous relations in the exudative form; while the sibilation, often persistent to a certain extent in the latter, is less apparent, or wholly absent, during the remissions in the former, adding another circumstance conferring upon these a greater comparative completeness.

It will be observed, that the leading point of distinction here, of a positive description, is the more nearly bronchitic character of the cough; apparent even during the paroxysms, but still more obvious during the periods of remission. This sign, not difficultly appreciable, and to the practised ear unmistakable, yet for the full recognition of which a certain amount of experience will always be requisite, is of immense value in diagnosis, as it is of most cheerful omen in prognosis; the instances being a very narrow minority, or the neglect flagrant and culpable, in which the sounds of bronchitic cough are once distinctly approached, and yet the disease afterwards becomes aggravated into serious danger. As to the merely negative signs, of the absence of curdy exspuition or of still clearer tokens of exudation, or the greater absoluteness of the remission, these, of course, are of a less tangible nature; yet still of material value and importance, when viewed in connection with the other. The course of the disease is usually shorter, and the peculiar paroxysms less frequently repeated than in exudative croup: it may, however, subside into a chronic form; or it may pass into bronchitis. Where it has once appeared, it leaves a proclivity to its recurrence; or the child, in a future attack, may be subjected to the more exquisite form of disorder. The mucous form of spasmodic croup is rarely fatal, because it depends usually neither upon any serious description of constitutional affection, nor upon any materially developed basis of local disorder. Still, where there has been a marked excess of nervous irritability, it may occasionally lead to suffocation, though leaving afterwards only few, or indistinct, traces of its previous existence.

If, by the addition of the element of spasm, but with the retention of a tendency, more or less pronounced, to increased mucous secretion only, we have simple laryngitis advanced into the more serious disorder of mucous croup, it is by the appearance of another element, that of fibrinous exudation, or the substitution of this for a merely quantitative increase of the natural secretion, that, grafted upon the like material basis, increased indeed in intensity, and modified probably by a peculiar plastic condition, or hyperinosis, of the general circulating fluid, we have the still more formidable disease of *Laryngitis spasmodica exsudativa*, or exudative croup: a form of suffering usually distinguished as *true croup*, the leading characters of which, as they have presented themselves to my observation, have already been detailed in the papers specially devoted to the subject of its nosography and symptomatography. In exudative croup, the initiatory stage is, nearly universally, distinctly marked by peculiarity of sound in the voice and cough, and by its ordinarily considerable prolongation. The degree of pyrexia, as we have seen, is variable, but it is still usually very decided; though unaccompanied, for the most part, with the deeper tokens of depression, attendant upon fever in its ordinary types. There is either aphonia, or, where the voice is hoarse, it is accompanied by a peculiar shrillness, or by a broken metallic clangour, less observable in other forms of disease of the larynx. The expirations, at first during the paroxysms, and subsequently at all periods of the disease, are more gravely sonorous, generally prolonged, sometimes vibratory or tremulous, and now and then retarded, or interrupted, as if by the intervention of the action of a pendulous valve. The cough is rougher, dryer, or more clanging; or it is feeble and whispering, a condition in which it contrasts still more strongly with that of the mucous form. The exspuition, where it is possible to observe it, is, at first, exclusively of clear mucus; then of mucus blended with pultaceous matters, or with curdy masses; or it presents pseudo-plastic shreds; or firm membranous expansions, sometimes of considerable dimensions.

The fauces, more distinctly red and tumid, show occasionally traces, though but in a minority of instances, of plastic exudation. The deglutition is sometimes remarkably impaired. The remissions, though sufficiently obvious, are less complete than in the mucous croup; the sounds of the voice and cough never resuming fully, or even approximatively, their ordinary qualities, or this occurring only in the comparatively rare event of an entire intermission in the disease, through a protracted interval, and with a subsequent relapse. The duration of the disease is usually more considerable than in mucous croup, and the sequelæ are frequently of a more serious nature, denoting the presence of a deeper inroad upon the general vigour. The specially diagnostic signs here rest generally on the whole tenour of the illness. That positive sign, which may alone be considered as invariably present, and which has its more signal value from its association with the peculiarity of the voice, is the rough, dry, and clanging cough of the earlier stages, standing widely and strikingly, and unapproachingly, apart from that of bronchitis. The still more positive distinctions of the curdy or membranous matters in the exspuition, or the more or less extensive traces of exudation on the fauces, are, as to the latter, not always present, or, as to the former, not always appreciable: where either occurs, the evidence is conclusive. Scarcely less conclusive, though at a later period of the disease, is the prolonged, gravely sonorous, or interrupted expiration, or the feeble and whispering cough. But it is by the entire outline of the malady, its intensity, the peculiar and poignant anguish of its suffering, and its tenacious hold in one or other of its features, that its formidable nature is chiefly revealed to us, and its proper diagnosis sufficiently established for every practical purpose.

Though we have thus, to a certain extent, viewed the varieties of Laryngitis as really differences in degree of intensity of a given morbid process, it would be an error to believe that they do not, beyond these, present differences of a specific nature also; and we must keep in mind that they are thus essentially to be considered, not as merely possible stages in an individual case of illness, but as distinct types of illness, occurring at different times, in different individuals, and with appropriate phenomena, and, as such, not traversing the limits of each other. The predominating tendency of mucous croup is, as a rule, specifically different from that of the exudative form: and simple laryngitis may have a fixed relation either to the one form or the other, according to its original bias; or it may complete its course as an existence independent of both. In like manner, the inflammation of the structure of the larynx may vary in the principal seat of its concentration, and we may have the sub-mucous areolar tissue as that chiefly affected, with the special results of disorder of this description of texture: hence its serous, and, sometimes, its sero-purulent, infiltration; and the origin of the disease of *acute* œdema of the glottis, or *Œdematous Laryngitis.*

This form of laryngitis is of rare occurrence in children, and, in the infant, has only presented itself once to my observation. The patient, thirteen months of age, of strumous habit, had first considerable tumefaction of the tongue, with the characters of œdema; and, two days afterwards, I found her with stridulous breathing, hoarse cough and voice, the former readily excited by efforts to swallow, and flow of viscid fluid from the mouth, the tongue being still distinctly tumified. After the fourth day of treatment, the child breathed easily, and through the nostrils, with the lips closed, and the sounds of the cough were as in ordinary catarrh; but, at the end of the ensuing week, she sank, and died, from other causes.

Œdema of the glottis, like every other inflammatory affection of this particular organization, is attended with suffocative paroxysms, alternating with intervals of comparative ease, denoting the accession and subsidence of aggravated spasm. It is distinguished from exudative croup, by its being preceded and accompanied by a greater amount of pain in the throat and larynx; by the hoarseness of the voice tending more uniformly to aphonia, and being unmarked by shrillness or clangour; by the cough being hoarse and short, and also without clangour, as without admixture of the roundness of tone of that of catarrh; or by its being feeble and whispering, and at all times frequent and suffocative; by the scantiness, or entire absence, of every description of sputum; and sometimes by the possibility of detecting the œdema, as existing at the root of the tongue, within the epiglottis, or in the aryteno-epiglottid folds. But the distinctive sign of the easiness of the expiration, as ordinarily alleged, is not of decided value: for I have observed instances where this act of the breathing could only, like the inspiration, be slowly and sonorously accomplished, as in the example of a lady, in her seventieth year; with whom, however, every effort at deglutition was exceedingly difficult, from the cough and impending suffocation which it induced. On the other hand, in two cases which I witnessed, the act of deglutition was not embarrassed. It is easy to comprehend, that these different conditions may be dependent upon the degree of extension, and particular site, of the serous infiltration. If the epiglottis participate largely in the affection, and stand erect from the glottis, that aperture will be unguarded, and exposed to intrusion: while, if the œdema be above the vocal chords, or the proper rima, these will open freely, and the expiration will be easy; as it will be obstructed where the tumefaction extends below the chords, and rises up against them with the exit of the current. In no example of this disease, in the adult, have I seen the fauces otherwise than slightly tumid, with sanguineous injection. As negative signs, we have the absence of traces of exudation on the fauces, and of membranous or curdy matters in the sputa. Taking the varieties of laryngitis in their relation to age, my cases shew the chief prevalence of simple laryngitis between the second and tenth year; of mucous croup, between the third and fifteenth year: and exudative croup, between the fifth month and the tenth year: while œdematous laryngitis ranges between the first and seventieth years.

Where the requisite crasis of the blood, and the proneness to pseudo-plastic exudation, exist already within the system, they may be brought into action by a variety of circumstances; and exudative croup may supervene upon a scald of the glottis, a surgical operation in its vicinity, or on other external causes. It is, therefore, not surprising that, where another disease has affected the system, part of the ordinary phenomena of which consists in an inflamed condition of the mucous membrane of the fauces or windpipe, there should occur with it, under certain favouring conditions of age and atmospheric influences, a like tendency to fibrinous exudation in the textures thus aptly predisposed for its development. Hence exudative laryngitis is known to complicate various of the exanthemata, (*Laryngitis spasmodica exanthematica*); chiefly measles, and, more rarely, scarlatina and small-pox. It is not unusual to describe the croup occasionally complicating measles, as uniformly a milder form of the affection, occurring only anterior to the efflorescence, and subsiding as the latter appears.[1] But no view of their mutual relations, if it be designed as absolute, could be narrower or more defective. I have observed the croup to occur before, contemporary with, and after the measly eruption; and, in an epidemic in 1838, it was intense in its symptoms, and a cause of considerable fatality. In some epidemics, however, the croup presents more of a mucous, and, therefore, a less severe character. As to its broader characteristics, there seems nothing to distinguish it from the more idiopathic forms, unless its concurrence with the proper symptoms of the measles, upon one of which it has been grafted. Croup, with scarlatina, is naturally largely influenced by the severer local affection with which it connects itself. Here, also, I have observed it both anterior and subsequent to the eruption. In this grave description of cases, the breathing may be rather stertorous than stridulous, of it presents a mixed character; the fauces combine the features of the greater tumefaction, and deeper colour, of the scarlatinous sore throat with those of diphtheria; there is fetor of the breath; the nose discharges an acrid and offensive ichor; and the deglutition is difficult, or impossible, liquids frequently regurgitating through the nostrils. After small-pox, I have known the disease assume a chronic form, passing into stenosis of the larynx. A girl, four years of age, had the confluent disease. From the time of its disappearance, and during two years afterwards, she had hoarse voice and cough, with difficult and sonorous respiration, especially during the night, subsisting with varying degrees of intensity.

The doctrine which asserts that the affection termed diphtheritis, or diphtheria, and the exudative croup are essentially identical diseases, is only justifiable, or even plausible, in a single point of view. In pathological histology, we doubtless learn that the morbid changes resulting in a given texture are closely similar, in whatever portion of the system that texture may subsist, if it be exposed to the influence of analogous morbific causes. But the disease which the nosologist must distinguish, and the practitioner treat, is not merely an anormal change in the constituent tissues, but is the complex product of that change, as it affects the mechanism and functions of the organ specially implicated; and varies immensely in symptoms, as in import and in treatment, according to the relations and structure of that organ, and its uses in the system. We know that pseudo-plastic, or diphtheric, exudation may exist in the pharynx, independent of all affection of the respiratory organs; as is witnessed in ordinary experience, and as long ago described by Ettmuller,[1] Huxham,[2] Reil,[3] and many others. But we know also from old, and often disastrous, lessons, that this form of exudation in the pharynx may extend, from a common predisposition, and by continuity of expansion, to the parts within the glottis, and that thus the symptoms of croup may supervene upon the phenomena of a prior disease, in a strict sense histologically the same, yet nosologically widely different. Yet, where the disease appears simultaneously in both localities, as seen by inspection, or as revealed by symptoms, it seems, *per se*, an insufficient criterion to distinguish, as has been attempted, the affection from ordinary exudative croup, that there should exist merely a greater than usual degree of inflammation in the parts visible, or that these should have shewn a greater proneness to the extrusion of fibrine; and accordingly the suggestion here of a new designation appears unnecessary. Beyond this connection, and it is unquestionably a very close one, to assert that the two affections stand in any constant or absolute relation to each other, appears as unreasonable in doctrine, as it is unfounded in fact; and it would be to falsify a host of general experience, were we to consent to reduce its whole tenour peremptorily to the results of that which has been gained in a few individual localities, and under, for the most part, the prevailing influence of determinate epidemic consitutions.

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[1] Cheyne, *Cyclop. of Practical Medicine*, Vol. I., p. 494.

An epidemic visitation of this description of seizure, of which I have a distinct recollection as a student, and one marked by abundant exudation on the fauces (*Laryngitis diphtherica*), occurred in the district of Scotland, a later experience in which has supplied my more direct opportunities for the observation of croup as it ordinarily presents itself. Since this somewhat extensive epidemic, which appeared in the months of May and June, 1825,[4] I have had opportunities, generally at long intervals, of witnessing analogous examples, in a sporadic form; and again, in an approach to an epidemic character, but of inconsiderable intensity, in the autumn of 1845. The attacks, in the disease of 1825, were of an exceedingly insidious description: the first symptoms being preternatural redness of the tonsils, velum pendulum palati, and whole of the pharynx, in as far as visible; with hoarseness and shrill cough, the latter being of trifling urgency; and with no perceptible difficulty of swallowing, and slight fever. My notes, preserved at the time, describe the exudations as then appearing, first as cream, or ash-coloured spots, on the tonsils, and sometimes on the velum; originally detached, but afterwards coalescing; and so extending as, in the course of three or four days, to cover more or less completely the whole of the surface previously marked by the sanguineous congestion. Along with this there was a gradual exacerbation of the croupy symptoms, till the disease became perfectly developed. The deaths were very numerous. In the sporadic cases which I have since witnessed, swelling of the uvula has been usually a conspicuous manifestation: it being described in one case as twice, and, in another, as thrice its usual dimensions; and, in both, completely invested with false membrane. Frequently, the more epidemic form is accompanied by a remarkable tendency to putrid or adynamic types of constitutional disorder; and sometimes to actual sphacelus of the mucous surfaces. As leading diagnostic signs may be indicated, a more continuous deterioration than in ordinary croup, the paroxysms being therefore less marked, and the remissions proportionately less obvious; a swollen condition of the sub-maxillary glands; the aspect of the fauces already described, with their deeper colour and greater tumefaction, and subsequent extensive pseudo-membranous investment; and the more malignant character of the pyrexia. The disease, in this form, is exceedingly fatal; and, even in cases of recovery, the convalescence is protracted, and the patient frequently remains in a feeble and cachectic state for a considerable time afterwards.

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[1] *Opera Medica, theoretico-practica*, Vol. II., p. 602.

[2] *Essay on Fevers* (2d Ed.), p. 98.

[3] *Erkenntniss und Cur der Fieber* (2te Aufl.) B. II., p. 421.

[4] William Robertson, *Account of a species of Cynanche Laryngea: Edin. Med. and. Surg. Journal*, Vol. XXV., p. 279.

The swelling of the sub-maxillary glands, as an ordinary accompaniment of this class of cases, as well as the "skin or eschar" (*pelejo, o escara*) on the fauces, is early, and explicitly, noticed by the Spanish medical writer, Geronimo Gil y de Pina:[1] and Andreas de Tamayo, at a somewhat remoter date, speaks of a swelling of the throat from ear to ear, below the chin, as a sign of unfavourable augury.[2] It is pleasing to refer to the writers of this interesting nation, at a period near the date of its palmy preeminence, for information on a point in which they had a large and a calamitous experience, and on one not destitute of a higher value than merely attaches to its origin. The difficulty of obtaining access to the publications of Spanish physicians, if not their actual paucity, prevents us from tracing easily the more recent history of the prevalence of the *Garrotillo*, or pharyngo-diphtheric croup, within the peninsula. Perez de Escobar, however, whose work I have encountered, speaks of an epidemic of the disorder, which continued from 1750 to 1762 to afflict the inhabitants of the vicinity of Madrid, and indeed of almost the whole of New Castile.[1] It appears that Dr Faure also, a French physician, who published his *Souvenirs du Midi* in 1831, had found it then largely prevalent. Yet Valentin[2] quotes Pinera as stating, that "angina membranosa is little, if at all, known in Spain, and no Spanish physician has described it." This, if true,[3] is manifestation sufficient, that the Spanish physician does not recognize that identity between the features of Croup and those of Garrotillo, so stoutly insisted on by several French observers of talent and authority. Escobar[4] seems to doubt whether the disease was not known in Spain earlier than 1610, the date usually assigned to its first advent in that country. It is of its prevalence in Sicily and the south of Italy, in the commencement of the same century, that, in nearly equal volumes, Aetius Cletus[5] has told us so much, and Thomas Bartholin[6] so little. Upon the whole, from a review of its history, from the period of Tamayo, down to that of Peter Frank[7] and to Bretonneau, we may consider this affection, in its worst forms, as bearing something like the same analogy to croup, in its ordinary states, though with a less extreme discrepancy of danger, that the malignant forms of small-pox, measles, and scarlatina bear to these diseases in their more common and milder aspects. The classical reader will recognize, in the Syrian or Egyptian ulcers of the tonsils of Aretæus, with their small and shallow pustules reciprocally coalescing, their white, lead-coloured, or black concrete humour, and the attendant symptoms of strangulation,[8] an evident representation of a disease identical with the morbus strangulatorius, the garrotillo, or the diphtheria of subsequent observers, placed more remote from him, than from each other, in the era and the arena of their experience.

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[1] "Aparecen los emontorios del cuello inchados": *Tratado de la curacion del Garrotillo, Zaragoça,* 1636, p. 41.

[2] *Tratados breves de Algebra y Garrotillo,* Valencia, 1621, p. 58.

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[1] *Historia de todos los Contagios*, Madrid, 1776, p. 255.

[2] *Recherches sur le Croup*, 1812, p. 57.

[3] Dr F. Rubio Sebatense (physician in ordinary to the king), another of the few Spanish medical writers whom I have had an opportunity of consulting, appears to indicate an approach to the knowledge of the occasional relation of croup to measles and smallpox, where he speaks of "much cough, with hoarseness, and difficulty of breathing," as denoting metastasis to the throat or lung, in either disease. *Medicina Hippocratica, O arte de conocer y de curar las Enfermedades*, Madrid, 1774, p. 310. It is worth noting, that a writer in a periodical of authority, referring to the low temperature, and the sudden changes in the direction of the winds, which characterize the climate of Madrid in the month of January, ascribes to these, among other noxious effects, such as, indeed, might have been anticipated, the abundant prevalence of laryngitis. *El Siglo Médico, Periódico oficial de la Real Academia de Medicina*, Madrid, Dec. 30, 1855, p. 415.

[4] *Op. cit.*, p. 223.

[5] Aetius Cletus Signinus, *De Morbo Strangulatorio*. Rom. 1636.

[6] Th. Bartholinus, *De Anginâ puerorum Campaniæ Siciliæque Epidem.* Paris, 1646.

[7] J. P. Frank, *De Curandis hominum morbis*, Lib. III., s. 364.

[8] *De causis et signis acutorum morborum*, Lib. I., C. 9.

The *Laryngitis typhosa*, of Louis, and others, observed to occur after typhus and typhoid fevers, seems to have its chief affinities with this class of cases. The relation of croupy symptoms to typhoid and pestilential disorders has been long a topic of observation. Thucydides, in his famous account of the epidemic of Athens, mentions, as among its occasional sequelæ, hoarseness and violent cough;[1] and he is echoed here, as usual, by Lucretius, who, in describing the pestilence, after noting that "ulceribus vocis via septa coibat," refers to the

> "tenuia sputa ———
> ——— per fauces raucâ vix edita tusse."[2]

Something of a similar kind appears to be indicated by Galen, with reference to the plague of his era.[3] At a far later period, Diemerbroeck, in describing the plague in the Netherlands, in 1635, speaks of hoarseness as uniformly a fatal indication; and confirms many other observers, by recording the unlooked for suddenness with which patients labouring under laryngeal disease are sometimes known to perish.[4] The proportion in which croupy exudation, ulceration of vicinity of glottis, or serous infiltration, occurs as a complication, or consequence, of the existing types of typhus manifestly varies with different epidemic constitutions. Huss, with an experience of 3186 cases of typhoid disorder, speaks of the laryngeal affection as of rare occurrence, and as generally not seen oftener than once in a hundred instances.[5] Out of 46 fatal cases, Louis appears to have observed the association of laryngeal disease in five instances.[6] M. Oulmont records six cases of croup, encountered as complications of typhus, in the epidemic of 1855, of which five proved fatal.[7] Sometimes the typhoid laryngitis assumes the form of perichondritis, and leads to a process of ulceration, with necrosis of the cartilages. A case of especial interest and rarity, where the greater part of the cricoid cartilage had been destroyed, yet where complete cicatrization was found to have ensued, is recorded by Professor Santesson.[1] The patient died of bronchitis, four months after the operation of tracheotomy, rendered necessary by the laryngitis, during which time he remained unable to discontinue the use of the canula.

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[1] *Histor.* Lib. II. C. 49.

[2] *De rerum natura*, Lib. VI. vv. 1146, 1186, 7.

[3] *Methodus Medendi*, Lib. V, C. 12: *Op. ed. Kühn*, Vol. X, pp. 361, 366.

[4] "Cum hujusmodi gutturis dolore vel raucedine nullum evasisse viderim, et sæpe ægri iis infestati ambulantes et loquentes moriebantur." *Tractatus de Peste*, Lib. I, C. XV, S. 10.

[5] *On Typhus and Typhoid Fever*, 1855, p. 163. (This work, interesting and valuable in itself, has a farther attraction for the English reader, from the peculiarity of its having been issued from the Stockholm press in an edition in our own language.)

[6] *Recherches sur la Fièvre typhoide*, T. I, pp. 187, 322: see also, Louis *Recherches Anatomico-Pathologiques*, pp. 204, 232.

[7] *Brit. and For. Med. Chir. Review*, Jan. 1856, p. 254.

As to that form of affection, which depends upon the extension of an aphthous disorder to the glottis, or the parts in its vicinity, (*Laryngitis aphthosa*), its symptoms are naturally a combination of those of laryngitis, and of the ailment which has been the cause of the irritation upon which it has based itself; and its diagnostic sign is mainly the presence of the aphthæ themselves. Towards the close of pulmonary phthisis, a seizure of this description is occasionally seen, perhaps not strictly referable here, yet certainly an affection wholly apart from the more chronic ulcerative laryngitis connected with the tubercular diathesis: the attacks, as I have witnessed them, being usually cursory, of little severity, and having no material influence on the otherwise fatal progress of the primary disorder. In a case of a more idiopathic description, or where, at least, the disease was more obviously and intensely localized, the aphthæ, visible in the mouth and on the fauces, were many of them distinctly vesicular, and of the size of a split pea; and presented, traversing the palate and fauces in every direction, streaks of exudation after the separation of the epithelium. The cough was peculiar, ringing, and croupy; but lost this character, in part, before the death of the patient, which took place somewhat suddenly on the ninth day after the first appearance of the aphthæ.

Such appear to me the distinctions, and the relative bearings, of the various acute affections of the larynx, which are either protopathic, and depend upon a local basis of disease proper to themselves, or are deuteropathic, and supervene upon a similar basis of disease, existing previously as part of another disorder. Many of these, we repeat, are often less essential differences, than modifications arising from casual circumstances, or from alterations in the chain, or in the complexity, of causation; but none of them are so completely uncharacterized, or so wholly insignificant, as not to be entitled to a separate consideration. Standing more widely apart from this group of affections, we have a class of cases, still directly dependent upon a local basis of disease within the larynx, but more remotely secondary in their nature; because arising rather from a general dyscrasia inherent in the constitution, than from any merely topical or transitory influence. They are chronic in their course; though liable, like the others, to paroxysms of acute violence, evidently attended by spasm, and these often arising upon the intervention of trivial causes.

With the first of these, *tubercular laryngitis*, especially when it has proceeded to its usual termination of ulceration, we have the hectic form of fever; there is hoarseness, or aphonia, or the voice is variable in its qualities; the breathing is frequently stridulous; the cough hoarse, without clangour, or whispering; the sputa are abundant, mingled usually with pus, not rarely with blood, and sometimes with portions of necrosed cartilage; and there is pain in the larynx, and impaired deglutition. Sometimes, during the acuter paroxysms or exacerbations, the pharynx appears red, and a pseudo-membrane has been known to be formed. A more ordinary result, however, is œdema of the glottis: a cause of aggravated suffering, which frequently precedes, and induces, the fatal close. The main diagnostic symptoms are, directly, the nature of the sputa, and, indirectly, the history of the case, and the indications of the primary disease with which it is associated. In *syphilitic laryngitis*, we confront with the symptoms the evidences of the fundamental disorder as still perceptible: the marks of existing, or previous, ulceration on the fauces; enlargement of the lymphatic glands in the neck, or above the elbow; and eruptions, cicatrices, or other tokens of the original taint within the system. Certain cases, apparently connected with an inveterate rheumatic diathesis (*Laryngitis rheumatica*), also chronic in their course, and with a tendency to necrosis of the laryngeal certilages, must be similarly judged by their relations to the primary disorders and by the more or less obvious exclusion of other possible cause, of unhealthy action. It is scarcely necessary to state, that this group of secondary affections is little known among children.

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[1] *Hygiea, Med. och Pharm. Maanads-skrift,* Stockholm, 1854, p. 634.

Thus far, the diseases included in the tabular arrangement, and grouping themselves more or less closely around the type of laryngitis, appear to have had sufficiently near affinities to each other, and to croup, to claim a part in the consideration of the special diagnosis of that disorder. The remaining affections embraced in the synopsis, standing further separated from laryngitis, or even, in a wide extent, from structural change in the larynx of whatever description, and presenting the conspicuous element of spasm under new aspects, and different relations, will fall more appropriately to be considered under the more remote contrast of a differential diagnosis.

ARTICLE II.—*Observations on Primary Amputation, with Cases.* By JAMES SPENCE, F.R.C.S., Lecturer on Surgery, and Surgeon to the Edinburgh Royal Infirmary.

THE results of primary amputation in civil practice, as exhibited in the statistics which have been published, are so unfavourable, when contrasted with those of military surgery, as naturally to suggest inquiry as to the causes which lead to this apparent difference. It ought to be kept in mind that the civil statistics have been drawn exclusively from hospital practice, whilst the statistics of military surgery are from general returns, and include amputations performed either on the field, or almost always at a short distance from where the injury was received; and, therefore, the civil statistics, however numerous the cases, are only partial as to certain important conditions.

Moreover, however valuable general statistics are for some purposes, they do not afford that special kind of information which is most useful, in a practical point of view, to the surgeon, when deciding on operation in any particular case. This, I believe, will be better attained by examining the details, and contrasting the individual cases, successful or fatal, in smaller groups, so as to be able to judge of the circumstances and conditions which influence the results: thus, the surgeon will be better able to arrive at sound decisions as to practice in any given case, than he will by knowing the bare fact, that of a certain number of patients operated on so many live and so many die.

It is with a view to aid in this method of inquiry, that I have drawn up the following seventeen cases of primary amputation, performed both in my private and hospital practice, and, therefore, under various circumstances.

I have marked in each case the nature and cause of the injury, the state of the patient at the time of operation, and any other condition which seemed likely to influence the result. I have also given a brief account of the general progress of the case, and in the fatal cases, the *post-mortem* appearances, where dissection was allowed.

Case I.—*Amputation at the Shoulder-Joint, on account of Injury by Machinery. —Recovery.*

About half-past four on the morning of the 9th December 1847, James W., mill-wright, was engaged among the machinery of a large paper-mill near Edinburgh, when his right arm was caught and dragged between two wheels, by which it was rapidly crushed. He was extricated in time to prevent his body being dragged in, but not before the soft parts on the right side of the chest had suffered severely. I saw him at half-past seven. He was lying in bed, pale and exhausted from loss of blood, quite sensible, though suffering the greatest agony. Stimulants had been administered, and external warmth applied; pulse, 120; skin covered with cold sweat. The limb was completely detached about three inches above the elbow; the humerus was also broken through obliquely immediately below the insertion of the deltoid, leaving the attachment of that muscle entire; but on the inner side the bone was splintered up to within an inch of the joint. The middle part of the humerus, together with the soft parts, were hanging in shreds. On the right side of the chest, the integuments had been entirely removed to within two inches of the sternum. The clavicular and sternal attachments of the pectoralis major were torn off, exposing the pectoral minor, the intercostal spaces, and externally the fascia, covering the axillary vessels and nerves. The fragment of the humerus was drawn upwards and outwards by the deltoid, and the lower fibres of the pectoralis minor, which were tightly stretched across the lower border of the wound, gave it the appearance of a deep dissection. Although, from the nature and extent of the injury, I had no hopes of his recovery, I thought it right to give him the only chance, viz., amputation at the shoulder-joint.

Having put the patient under the influence of chloroform, Mr Falconer compressed the axillary between his fingers above the pectoralis minor. The outer flap was formed from the outer and back part of the shoulder, where the integuments and muscles seemed sound. After disarticulating and forming the inner flap, the axillary artery was secured at the point of division; but afterwards, lest it should have there sustained injury, I passed a ligature round it at the lower margin of the pectoralis major. All doubtful looking textures having been removed, the wound was closed, and warm water dressing applied.

In the evening, his pulse rose from 68 to 84. Next day it again rose. A laxative draught was given, followed on the 11th by castor-oil, which caused free evacuation. He got weak beef-tea, for which arrow-root was substituted, as his pulse rose to 100, and his skin was hot. A draught of morphia and ipecacuan wine was given at night. On the 12th his pulse had fallen, and was soft. The wound was dressed for the first time, and found to present a favourable appearance. Suppuration had commenced at the lower part. He passed a bad night, suffering greatly from sickness and vomiting. In the morning half a grain of solid opium was given, and at noon a grain, as the vomiting still continued. In the evening the vomiting ceased, and he partook of a little arrow-root. An enema was ordered, to be followed by a grain of solid opium. On the 14th, wound was found uniting at the upper part, granulating at the other parts; the suppuration was healthy. The sickness was quite away, but some irritability of the stomach still remained; to allay this and diminish thirst, effervescing draughts were ordered. On the 17th the lower ligature of the axillary artery came away, and next day another ligature separated, but without the slightest tendency to bleeding. A slight attack of bronchitis came on, which yielded to prompt treatment. On the 8th January, the upper ligature of the axillary artery came away. In the beginning of February, the last ligature was removed; very shortly after this, the wound was completely cicatrized.

CASE II.—*Amputation at Shoulder-Joint—Injury by Machinery—Death from Secondary Hemorrhage.*

In October 1852, I was sent for by Dr Ellison of Pennicuick, to see a young man who had received a severe injury of the right arm by machinery in a paper mill. I found the soft parts of the arm from near the shoulder, and down the forearm, extensively lacerated, the muscles in the upper arm being fairly stripped off the humerus, a portion of the inner side, comprising the great vessels, having alone escaped. The bones were not fractured, but from the nature and extent of the injury, and the complete destruction of the muscles and skin, it was evident that amputation at the shoulder-joint was the only chance for the patient.

This I did by lateral flaps, disarticulating and then forming the inner flap by cutting outwards. Whilst I was cutting outwards through the nerves and vessels, the patient, having partially recovered from the chloroform, made a sudden movement, which threw off the hold of the gentleman who was compressing the subclavian artery, and a gush of blood from the axillary blinded me; but luckily I succeeded in grasping the vessels and nerves, and secured the whole mass temporarily, till I had tied the smaller vessels; then I cleared the axillary higher up, and placed a ligature upon it, removed the temporary ligature, closed the flaps by suture, and dressed the stump.

Next day I found the patient going on favourably: there had been slight venous oozing, which was arrested by cold water cloths, and there was now neither oozing nor tension of the stump. On the fifth day the patient was going on exceedingly well; a large part of the stump had healed by the first intention, though, at the lower part, there was a considerable discharge of pus along the course of the ligatures, and a little erysipelatous redness.

Late at night, on the sixth day after the opreation, I was sent for, on account of the sudden occurrence of hæmorrhage, but before I reached his house, the patient was dead.

On opening, and examining the stump, the greater part was found solidly adherent, and even along the course of the vessels, there appeared to be no great amount of sloughing or suppuration. The hæmorrhage was from the axillary, which presented an open mouth, as if cut with a knife, to the extent of about two-thirds of its circumference, the ligature being still attached to the remainder. I learned from Dr Ellison that the patient had been exceedingly well all that day, and that Dr E. had seen him shortly before the bleeding occurred. It came on either during, or shortly after, the patient had been turned in bed, and though Dr E. succeeded in arresting it by pressure, so much blood had been previously lost, that he soon sank.

Case III.—*Amputation at Shoulder-Joint—Railway Injury—Recovery.*

William Watson, æt 21, railway porter, while engaged in the Caledonian Railway Station, on the 19th September 1855, fell, and the wheels of two railway carriages passed over his right arm, above the middle of the humerus. He was brought into the hospital about half an hour after the accident.

The humerus was found to be comminuted, and the fracture rendered compound by two openings, one on the inner surface of the humerus, and the other over the deltoid, from both of which there was slight hæmorrhage. The clavicle was fractured, and blood infiltrated over the right side of the chest, the muscles and deep seated tissues being extensively lacerated. There had been little loss of blood, but the patient was pale and cold, and suffering severe pain. Amputation was determined on, and some port-wine having been administered, the patient was removed to the theatre. The operation was performed by flaps, cutting from without inwards. The axillary artery was secured before the posterior flap was formed. A good deal of lacerated muscle and infiltrated tissue were removed, and the wound dressed in the usual way. After the operation, he got Sol. Mur. Morph. ʒi, and port-wine was given in occasional small doses. He soon recovered a natural temperature by the external application of warmth. There was very little oozing ; in the evening he vomited ; an opiate was given at bedtime, and the wine continued. A mixture, containing hyoscyamus and acetate of ammonia, was ordered. During the night, tartrate of antimony was given in doses of an eighth of a grain, but reduced to a sixteenth, on account of sickness. Next day the dressings were changed ; pulse, 126. On the 21st, it was 105 ; the antimony was stopped, as the patient complained of sickness and severe thirst ; his bowels freely opened by enema. He passed a quiet night, and his pulse fell to 100. A poultice was applied over the stump to detach the sloughs. Union took place by the first intention at the upper part of the wound. An abscess was opened over the clavicle. The sloughs were entirely separated on the 28th, and on the 29th, four ligatures separated. The ligature on the axillary artery separated on the 6th October. After this, the wound healed gradually ; the openings, which constituted part of the original injury, and that over the clavicle, closed. The patient's general health was excellent ; on the 27th October, only a small space in the centre of the stump remained unhealed.

Case IV.—*Amputation of Fore-arm—Injury by Machinery—Recovery.*

Alexander M'——, æt. 19, whilst working at the tunnel in Dublin Street, had his hand and lower part of fore-arm caught in some machinery, which completely crushed the parts. He was brought into my house, and after examining the parts, and applying a temporary support, I had him conveyed to his lodgings in Dundas Street, where I amputated the fore-arm above the middle. An opiate was given immediately after the operation, and he passed a good night. Next day there was considerable tension of the stump, and febrile excitement ; but these symptoms soon yielded to cold applications to the stump, and the use of antimony in small doses, combined with the acetate of ammonia, and tincture of hyoscyamus, and he made a very good recovery.

Case V.—*Amputation of Fore-arm—Injury by Machinery—Recovery.*

—— M'Kie, a boy about 9 years of age, was brought to my house, having received an injury of the hand and wrist.

He and some other children had managed to get, unobserved, into a manufactory at Canonmills, and, while playing about, his hand got entangled; fortunately he was extricated in time to save further injury. The hand was quite crushed, and the wrist joint laid open, so that the necessity of amputation was evident, and his parents, who had brought him, at once consented. I therefore gave him chloroform, and, with the assistance of Dr Littlejohn and another medical gentleman, I amputated the fore-arm in my surgery; and, after dressing the stump, and letting him rest for about an hour, sent him home in a cab.

On the second day, a considerable degree of tension of the stump, and erythematic inflammation supervened. Some sutures were removed, tepid-water dressing was applied to the stump, and the use of the antimony and acetate of ammonia mixture was kept up for some days. Under that treatment the erysipelatous action disappeared, and the stump was healed about the fifth week.

CASE VI.—*Amputation of Fore-arm—Injury by Machinery—Recovery.*

On the 27th April 1853, —— Mason, a man about 50 years of age, had his hand and wrist injured between the rollers of a glazing machine at a paper mill. I saw him, at the request of Dr Ellison of Pennicuick, and found the bones of the fore-arm unbroken, but the whole of the skin and fascia completely stripped off the lower part of the fore-arm and hand; the skin hanging from the fingers like an inverted glove, and quite cold and black. The palmar fascia was torn off, and both the superficial and deep arterial arches, the nerves, and the palmar muscles, were completely lacerated; as well as most of the tendons and muscles, both on the fore and back part of the wrist. I was informed that the patient had suffered from fever, and was peculiarly excitable.

Immediate amputation was performed a little above the middle of the fore-arm, by flap operation, and an opiate was given.

I saw him again on the fourth day after the operation; he had been using the acetate of ammonia mixture, and his skin was moist, pulse moderate, and there was very little constitutional disturbance. I removed most of the sutures, and found great part of the flaps adherent. He continued without any bad symptom till the ninth day after the operation, when some redness appeared on the skin near the stump, and he became excited, and ultimately delirious, with a quick pulse. I visited him, removed some loose ligatures, and directed tepid fomentations to the fore-arm, and the use of opiates and antimony after the bowels had been freely opened. This was done, but did not require to be long persevered in, as the state of excitement and delirium passed off in a day or two. The stump healed, and he recovered without any further bad symptoms.

CASE VII.—*Amputation of Fore-arm—Railway Accident—Recovery.*

Alexander Millar, æt. 22, railway guard, was admitted into the Royal Infirmary, at 3 A.M., on the 26th December 1854, having received a severe injury of the hand and fore-arm.

I was sent for, and, on examination, found the whole of the hand and carpus completely smashed, and the integuments and superficial muscles at the lower part of the fore-arm lacerated. The nature of the injury evidently placed any attempt to save the limb out of the question. I accordingly at once performed amputation by double flap, about the middle of the fore-arm. On the second day after the operation, I found the patient feverish, with quick pulse, white tongue, and hot dry skin. On looking at the stump, I found it tense and swollen, with an erysipelatous blush extending to the upper arm. I therefore removed the sutures, with the exception of two; the stump was dressed with warm water lint; whilst hot fomentations of acetate of lead and opium were applied to the upper arm. For some days the irritative fever continued, and the pulse ranged from 110 to 120, notwithstanding the use of antimony in combination with the acetate of ammonia mixture. Gradually, however, as the stump began to suppurate freely, the erythema disappeared, and the constitutional symptoms abated. The flaps were then more accurately adjusted by bandaging.

The stump healed well, and the patient was dismissed cured, on the 25th January 1855.

Case VIII.—*Partial Amputation of Hand—Injury by Machinery—Recovery.*

In 1854, —— R—— was admitted into the Royal Infirmary, on account of a severe injury of the hand, inflicted by machinery at a paper-mill in the neighbourhood of Loanhead. The whole of the fingers, with their metacarpal bones, were fractured and comminuted, and the soft parts of the palm extensively lacerated and contused, the laceration extending obliquely upwards over the front of the ulnar side of the wrist. On examination, some of the short muscles of the thumb, and its long flexor and extensor tendons, being found entire, it was decided, in consultation, to save the thumb.

I therefore performed partial amputation, with the intention of dividing the metacarpal bones; but, on forming my flaps, I found the distal range of the carpus involved, and therefore removed it, along with the metacarpal bones of the fingers. For some days the stump looked well, but inflammatory swelling of the fore-arm, followed by abscesses along the tendons, supervened; the pulse kept high, the constitutional fever was severe, and fresh abscesses occurred from time to time. Sloughing of some of the muscular tissues about the thumb also occurred. Gradually these untoward symptoms abated, and the stump cicatrized; but, in consequence of the thickening and contraction of the tissues, there was but very little mobility of the thumb. Now, however, the patient says he can use it a little, and there is the power of pronation and supination, which, of course, would have been lost by amputation of the fore-arm.

Case IX.—*Amputation of Thigh—Injury by Machinery—Recovery.*

Thomas O., aet. 15, was employed in the Colinton paper mills. About four o'clock on the afternoon of the 23d April 1851, his foot was caught in a toothed-wheel, and forcibly dragged round. He was immediately brought into the hospital, where he arrived about half-past seven. The bones in front of the ankle-joint, including the tarso metatarsal articulations, were smashed into fragments: the foot was attached only by the integuments of the sole. Neither knee nor ankle-joint was involved; but the integuments of the anterior surface of the leg were stripped off, exposing the whole length of the tibia, the substance of which had been ploughed up by the teeth of the wheel. The anterior tibial artery was torn across, yet there had not been any considerable amount of hemorrhage. Amputation was performed by flaps at the lower third of the thigh. After the operation, his pulse was 130, soft; skin hot and dry. Wine was given in small doses, and a mixture, containing vin. antimonial and acetate of ammonia. Next day he was only semi-conscious; pulse 120; wine continued. On the 25th, two stitches were removed, antimony discontinued, and a purge given. Gentle diapharism was established, and sleep obtained. 26th, his pulse fell to 92, regular; the lower part of the wound began to discharge. 29th, two ligatures separated; the discharge was now considerable and healthy. On 4th May only two ligatures remained; pulse averaged 90; his general health began to improve. May 10th, a large abscess over the bone was opened, and bare bone detected at the inner side, the rest being covered with granulations. Two sinuses formed, one on the upper, the other at the inner side of the stump, both communicating with the bare bone. June 1st, an abscess over the trochanter major was opened. June 12th, the sequestrum was to-day removed. It was circular, including the whole thickness of the bone for an inch upwards, on the anterior surface; behind it was a thin narrow rim. The line of incision now began to close; retraction threatened, for which strapping was applied. From this time the patient went on steadily improving; the line of incision entirely cicatrized. In consequence of a fall, the cicatrix was partly undone, but very superficially; strapping was applied, and he was kept to bed for a few days. On the 15th September the stump was entirely healed, and on the 22d he was dismissed.

Case X.—*Amputation of Thigh—Railway Accident—Death from Mortification of Stump.*

David Wallace, æt. 25, admitted August 11 1854, on account of compound comminuted fracture of the bones of the leg. A heavy truck passed over his right leg about two P. M. The gentleman who first saw him applied a tourniquet, and had him sent into the hospital in a cart. He arrived at six P. M. He was pale, and his pulse very weak from loss of blood. On examination, the bones were found to be ground to pieces, just below the tuberosity of the tibia; the muscles of the calf were divided, and mixed up with fragments of bone; the skin was entire, excepting on the front and on the outer side. Four oz. of brandy and ʒi. of Morphia were administered. He was put under chloroform, and removed to the operating theatre, but nearly sank on the way, respiration and pulse ceasing almost wholly. He was allowed to awaken, and had two oz. of whiskey as soon as he could swallow; he was again put under chloroform, and amputation by flaps performed at the lower third of the thigh. During the operation he nearly sank thrice. He was then removed to bed, and surrounded with hot bottles; two oz. whiskey and ʒi. Morphia were administered; in a short time he vomited; the morphia was repeated; pulse 120, very weak. He rallied about three next morning, under the assiduous application of stimulants and warmth. In the afternoon the skin was warm and moist; pallid hue gone. Got ʒi. Sol. Mur. Morph., which he soon vomited; Bismuth Alb. gr. x. He became very excited and restless; the dressings came loose; dry lint was applied. Three stitches were removed, as some oozing had taken place. He slept well during the night, but awoke weak and restless: pulse 130; to have port wine ℥ss. every hour, and Sol. Mur. Morph. ʒi., and M. xx. every fourth hour, if necessary. The bowels were moved by enema. At five P. M. the pulse was 130, full. Slept soundly all afternoon. Sweated profusely, but felt quite comfortable. At seven P. M. he was found pale and collapsed, only semi-conscious. There was a fœtid smell round the bed. There was a bluish line all around the stump above the dressings, and a row of phlyctenæ behind it; the bandage was becoming tight. All dressings and stitches were removed. The stump was quite cold as high as the trochanters, and emphysematous. A poultice was immediately applied all over it. Wine ʒiv and whiskey ʒij were given; but the gangrene spread rapidly, and the patient died at half past nine P. M.

No examination was allowed. Shortly after death, the body became of a purplish hue, and emphysematous all over, especially the head and face.

The laceration was of the peroneal and posterior tibial arteries, below their origin from the popliteal. They were completely cut, and surrounded by a large clot. The inner coats were lacerated, especially in the posterior tibial, for fully a quarter of an inch. At the upper part of this the inner coats were contracted and retracted; the vessels up to their junction were filled with clot. The veins were also divided; but the nerves were entire.

Case XI.—*Amputation of Thigh—Railway Accident—Recovery.*

On the 14th March 1855, Archibald E., æt. 20, while working at the Polmont Station, fell, and the wheels of a brake passed over his right leg, just below the middle of the tibia. Dr Myrtle put up the limb on a splint, and had him sent in to the hospital.

The tibia was splintered vertically; there was impaction of the fragments, and but little displacement; the fibula was entire. The chief injury was of the soft parts, the muscles of the calf being completely torn across, and the posterior tibial vessels and nerve extensively lacerated. Amputation was performed by the circular method at the lower third of the thigh; three hours after the accident, the laceration and bruising which extended into the popliteal space, forbidding operation at a lower point. There was slight oozing after the operation, but, with that exception, the process of healing went on without any unfavourable symptoms. His pulse fell from 108, which it was after the operation, to 90, which was its average during the rest of his stay in the hospital. The bowels resisted the most active purgative medicines, and were not relieved till the eighth day after his admission. About the 26th of April the stump was entirely whole, except a small opening leading to a sinus among the hamstring muscles. A counter opening was made, and sulphate of zinc frequently injected. Under this treatment the sinus gradually closed, and on the 16th May the stump was entirely whole.

CASE XII.—*Amputation of Leg on account of Compound Comminuted Fracture resulting from a Fall—Recovery.*

On the 27th March 1847, Matthew D——, miner, æt. 45, residing at Burdie-House, fell down a shaft about five fathoms, and alighted on his foot, shattering the bones of the leg and opening the ankle-joint. He was seen by Mr Falconer of Loanhead, who used means to arrest bleeding, had him conveyed to his house, which was close at hand, and sent for me to amputate the limb. As it was evident there was no chance of saving it, I amputated it at once by the flap operation, a little below the knee. The patient bore the operation well, and an opiate was given immediately after.

With the exception of some suppuration in part of the stump, the case went on favourably, the stump was completely healed in little more than a month, and he made an excellent recovery.

About a week after the accident, his wife was attacked with typhus fever, but though lying in the same small apartment, the man never seemed to suffer in any respect.

CASE XIII.—*Amputation of Leg—Railway Accident—Death from Pyœmia —Hospital.*

David P——, a man of about 50 years of age, was admitted into the hospital on the evening of Saturday 20th August 1852, having sustained a very severe injury from some railway trucks having passed over his left foot. The patient had, many years before, had the arm of the same side amputated at the shoulder on account of a railway injury.

On examining the injured foot, I found it completely crushed, and the ankle-joint opened; the integuments of the heel and ankle were much torn and bruised. I accordingly found it necessary to amputate the leg; but with a view to inflict as little shock as possible, I performed it below the middle of the leg by dissecting flaps of integument, and then dividing the muscles almost circularly, so as to diminish the extent of cut surface. The stump was dressed in the usual manner.

The patient at first went on very favourably, the pulse gradually diminished in frequency, and, on 28th August, it was only 80. The patient took his food with appetite, and, though from the first despondent, on account of his mutilated condition from the combined effects of this and his former injury, gradually became more cheerful. A small part of the margin of the posterior flap sloughed; the slough separated on the 28th August, and after that the wound closed rapidly, so that on the 9th September, when I left town for a short time, there was only a small granulating surface left,—his pulse and general symptoms also continuing favourable. On the evening of the 11th September, he had a sudden rigor, followed by quick pulse, nausea, and other unfavourable symptoms. I saw him on the 14th, when he was evidently sinking from pyœmia; the small surface not healed was pale and covered with a foul discharge, and the end of the tibia was felt bare. The face was shrunk and jaundiced, and the pulse 130, small. I subsequently learned that these symptoms continued, and the patient died on the 17th September.

Case XIV. *Amputation of Leg—Railway Accident—Recovery.*

George B., æt. 16, employed at a coal-pit near Dalkeith, on the afternoon of the 16th June 1853, was waiting the arrival of some loaded coal trucks which were let down an incline with a chain attached to a train of empty trucks, which were brought up on the opposite line by their descent. Instead of waiting on one side, the lad foolishly crossed the line, and, in attempting to get over the chain whilst it was running out at great speed, his foot and ankle got entangled. He was seen, shortly after the accident, by Dr Thomson of Dalkeith, who sent for me. When I saw him, about an hour after the accident, he had recovered from the shock, and was lying on his bed. There was a severe compound comminuted fracture of the lower ends of the tibia and fibula, and a compound dislocation of the ankle-joint; or rather, I should say, the foot was all but torn off, being merely attached by the tendo Achillis and a shred of skin.

The absolute necessity for amputation of the leg was evident, and I accordingly at once performed the flap operation a little above the middle, taking care to remove a considerable portion of muscle. I only saw the patient occasionally during the after treatment, but he made a very good recovery. The only thing worthy of notice was, that some weeks after the stump was cicatrized, Dr Thomson informed me that a small prominent granulation protruded, from which a considerable flow of blood took place, and a ligature was discharged. After this, no more bleeding occurred.

Case XV.—*Amputation of Leg for severe injury from a Fall—Several other Fractures—Death from Pyœmia—Hospital.*

Walter Walkinshaw, æt. 16, admitted June 22, 1854, having suffered numerous injuries from falling down a coal-pit at Falkirk, a depth of eight fathoms. He was stunned, but not insensible. The accident happened at five A.M.; he was brought in to the hospital at two P.M., calm and collected. He had sustained fracture of the right tibia and fibula, just below the tuberosity of the former bone, and fracture of the right femur in its lower third. The fracture of the leg was rendered compound by a small opening, from which blood flowed when the dressings applied in the country were removed. The left tibia and fibula were also fractured two inches above the ankle; there was here a small opening from which blood, at first venous, but afterwards of an arterial tint, flowed. The fracture of the tibia was impacted; it was also found, on bending the foot, to be much comminuted, as if the tibia were split into the ankle-joint. The foot was cold and livid, and no pulsation could be detected in either the anterior or posterior tibial arteries. As the patient was evidently much exhausted from the shock of the injury and the fatigue of the journey, when I saw him, at half-past three P.M., and as the general circulation was very feeble, I thought it advisable to wait for a few hours, so as to ascertain whether the state of the circulation in the left foot was dependent on the local injury, or would improve when the general circulation became stronger. The other injuries were adjusted, the left foot and leg laid in an easy position, and an opiate and stimulants directed to be given. I again visited him at half-past seven P.M., when I found, that though moderate reaction had taken place, the left foot and ankle were still cold and livid, no pulsation could be felt in the vessels, and the limb was tense from effusion of blood amongst the lacerated muscles, the blood flowing from the wound when the dressings were removed. Under these circumstances, it appeared to me that amputation was imperative. I accordingly performed it above the middle of the leg. An opiate was then given. For some days the patient went on pretty well, but depressed; the pulse, however, continued frequent. He did not sleep well, and complained of great pain caused by the other injuries. His tongue became foul and loaded, the skin assumed a yellowish tint, the pulse was weak and rapid, with rigors. Stimulants and nourishing food were given, but the symptoms of pyœmia continued to progress. He ultimately sank rapidly, and died on the 8th July.

CASE XVI.—*Amputation of Leg—Railway Accident—Death from Pyœmia —Hospital.*

James Skinner, æt. 30, railway guard, admitted 25th July 1854, on account of laceration of the foot and ankle, and fracture of tibia, and lacerated wound of thumb. The wheels of some trucks passed over the outer side of the left foot, laying open the joints, stripping the calcaneum, and fracturing the tibia into the ankle-joint. Amputation at the middle of the leg was immediately performed. On the 27th, when the dressings, having loosened, were reapplied; union had taken place along great part of the edge of the incisions. The stump was dressed daily; the discharge was healthy, and not very abundant. His pulse averaged 110 to 120. 4th Aug. He was ordered a bottle of porter. In the evening he vomited much bilious matter; ordered Pil. Hydrarg. gr. iv. c., Pulv. Jalap Comp. ℈j. 5th Aug. The bowels having been freely moved, he feels much better. Skin and sclerotic of a yellowish tinge. In the evening he had a severe rigor. 6th Aug. Restless and in low spirits. Pulse 130. Slightly delirious at night. Discharge healthy and abundant. Flaps shrunk, and the ends of both tibia and fibula seem to be dead. He suffered greatly from thirst and pain in the right hypochondrium, over which a blister was applied. Ordered Pil. Opii. gr. i every fourth hour, and Quinine gr. iij every third hour. 7th Aug. Thirst unabated. Quinine stopped during the night, as vomiting came on. Ordered Bismuth Alb. gr. x every second hour. Pain over the liver greatly increased. 8th Aug. He has got gradually weaker. Pulse 140 or upwards. Vomiting incessantly whenever he took anything. Pain in the hypochondrium increased. The discharge from the stump ceased. He was quite conscious, but sank very rapidly, and died at five P.M.

Sectio. Liver—a mass of small tubular abscesses; in many places these had coalesced into cavities the size of a walnut. Two large patches of small abscesses were found over the rounded margin of the right lobe. Lungs—one or two consolidated granular spots occured on the right lung; one distinct at the posterior part of the lower lobe; these spots broke down under the fingers, and were of a dark purple colour. Spleen soft and pulpy. Other organs healthy. The extremities of both tibia and fibula were stripped of periosteum and dead. Granulations, however, protruded from the medullary cavities of both bones. On stripping up the thickened pulpy periosteum from the inner side of the tibia, immediately above the bare portion, the bone was becoming opened out; the line so formed was irregular with a serrated margin, the periosteum being attached to those serrations which were continuous with the living bone. No pus was found in the femoral vein.

CASE XVII.—*Amputation of Leg—Injury by Machinery—Recovery.*

James G., æt. 25, whilst engaged at his occupation at a paper mill, when oiling some of the machinery, had his right leg caught between two toothed cylinders used for tearing up rags. The machinery was instantly stopped, but his leg was found to be much lacerated. He was seen very soon after the accident by Dr Ellison, who, after dressing the wound temporarily, was about to send him to the Royal Infirmary, but in the act of moving him to the carriage, violent hæmorrhage came on, so that Dr Ellison, after arresting it by the use of the tourniquet, thought it advisable to send for me to see him. On my arrival, I found him pale and exhausted from the shock and loss of blood. On examining the limb, I found a deep lacerated wound about four inches long on the inner side of the leg, detaching the inner origin of the soleus, and, on introducing the finger, other muscles were felt to be much torn, and the fibula fractured about two inches above the external malleolus. From the plantar aspect of the foot, I found that a large triangular flap, nearly the whole breadth of the foot, had been torn up, exposing and partially involving the plantar fascia, whilst the upper part of this last mentioned wound extended nearly up to the inner malleolus. The tibia was entire. On removing the compression from the vessel after the patient had been put under the influence of chloroform, the pulsation of the anterior tibial was felt, but arterial blood welled rapidly up from the lacerated wound, on the posterior part of the limb. I, therefore, enlarged the wound upwards and downwards, till it was about seven inches and a half long, so as fully to expose the bleeding point, which I suspected to be the posterior tibial. On doing this, I found the deep muscles so torn up and filled with effused blood, that they afforded no guidance; but clearing the parts a little, I exposed the posterior tibial nerve, which served as a guide to the artery. On the compression being now relaxed, blood flowed from the posterior tibial artery at its lower part, from a small wound, and the bleeding seemed chiefly retrograde. Having secured this by ligature above and below the opening, I again sponged and cleared away the clots over the vessel at the upper part of the wound, as, from the retrograde bleeding, I suspected the artery must also be wounded higher up. When the coagula were cleared away, the vessel bled, *per saltum*, at a point near the upper part of the wound, and here I again secured it; after this there was no more arterial bleeding. I then dressed the wound, and applied a roller and a pasteboard splint to prevent motion; and, after the patient had rested a little and had some wine, I gave him a draught of thirty-five drops of laudanum in a little wine and water, and conveyed him along with me to the Infirmary. During the journey, although all possible care was taken to prevent much motion, his pulse had a tendency to sink, notwithstanding there was no bleeding, and he required stimulants from time to time.

On arriving at the Infirmary, I had him immediately placed in bed, hot bottles applied, and some more morphia and wine administered; he was then left to recover the fatigues of the journey.

A consultation was held in the evening, and amputation determined upon immediately. The patient having now rallied sufficiently from the shock, he was, with some difficulty, placed under the influence of chloroform, and I performed amputation of the leg at about one inch below the tubercle of the tibia.

The flaps were composed almost entirely of integument, and, to obtain a sufficiency, it was found necessary to cut very close upon the lacerated parts. As the operation was performed by candle-light, some difficulty was experienced in securing the vessels, and some blood was consequently lost.

The patient was then placed in bed, and forty drops of solution of morphia administered, as soon as he had recovered from the effects of the chloroform.

Nov. 9.—Slept tolerably well, pulse 84, rather jerking; he is restless, and has moved the stump a good deal, so that the dressing requires to be changed; he is ordered a mixture containing small doses of antimony, with the Sp. Ether. Nit. Tr. Hioscyam, and Aq. Ammon. Acet.

In the evening he was restless, and an opiate was prescribed, preceded by a simple enema, as he stated that his bowels have not acted for four days previous to the operation.

10th.—Pulse 78, soft. Tongue rather foul. Bowels not having acted from the enema, he was ordered a couple of aloetic pills.

In the evening, the pills not having produced any evacuation, the enema was repeated, and a copious motion the result.

11th.—Stump dressed, and two strips of adhesive plaster applied. Edges of wound looking well. Pulse 82, soft.

13th.—He continued well all yesterday, but early this morning he became restless and excited, talking incoherently to himself, but answering rationally when spoken to. Pulse did not rise, and there was no tremulousness of tongue. He was ordered a draught containing twenty-five drops of solution of morphia, which was repeated after the lapse of an hour. He then fell asleep, awakened perfectly sensible and collected. Stump dressed again to-day, when a small portion of the edges of the flap was found to be sloughing, and another slough is formed in the centre. Warm water dressing applied.

16th.—He has been progressing very favourably; the sloughs have separated, but another small one is forming over the edge of the tibia. Pulse 78, soft. Bowels regular; appetite good; tongue clean.

18th.—Doing well. Wound granulating and contracting. A small portion of the tibia about to exfoliate.

20th.—Several of the ligatures came away to-day.

23d.—Remaining ligatures separated; stump looking well.

25th.—Small exfoliation from tibia removed; stump looking well; general health good. Pulse 72, sleeps well.

30th.—Another small exfoliation from tibia came away to-day.

Dec. 3d.—Cicatrix rapidly contracting. General health excellent.

12th.—Face of stump almost entirely healed, and he is in every respect doing very well.

The stump was quite cicatrized by the 26th of December.

Remarks.—If we turn our attention, in the first instance, to the fatal cases, we find that the immediate causes of death were, in one case, secondary hæmorrhage, in one, gangrene attacking the stump, in three, pyœmia.

Secondary hæmorrhage, which occurred in the amputation at the shoulder (No. II.), is by no means a common cause of death after primary amputations; but as it has led to a fatal result in other cases of amputation at the shoulder joint, it may be as well to examine into its probable causes in the case narrated.

The artery had been tied well up from the margin of the flap, where all the tissues were apparently sound, the patient was young, there seemed to be no want of healthy action in the stump, as the greater part had united, and there did not seem to have been any great amount of suppuration even along the course of the vessel; yet the bleeding occurred at a very early period, and the vessel, little altered in appearance, seemed as if cut with a sharp instrument for about three-fourths of its circumference; in short, divided by acute ulceration, presenting no appearance of internal clot or external plastic effusion.

The nature of the injury, in this case, may probably account for the result, for the arterial tissue may have suffered from the dragging and twisting by the machinery, and thus had its vitality impaired to a much greater extent than would at first sight appear. When the injury necessitating amputation is direct, as a crush by machinery, or the wheel of a carriage, the arterial tissue is not likely to be affected much beyond the parts injured; but when the limb has been dragged and twisted by machinery, as in this case, then, as I have said, the effect of the traction may have injured it much higher, and hence the more rapid ulceration caused by the ligature. I suspect, also, from what I was told, that the patient, feeling pretty well, had not been so quiet as was desirable, and he was being moved when the hæmorrhage occurred.

The death from gangrene attacking the stump, which occurred in one of the thigh cases (No. X.), has been frequently noticed, after primary amputations, where the patients have been much debilitated either by loss of blood or by excessive shock. In this case, we had both conditions combined to such an extent, as to render it doubtful whether he could bear the operation; but as bleeding was going on into the lacerated tissues of the leg, it offered the only chance for life. We can be at no loss to understand how, in a patient so debilitated, the general and local vital powers should be so impaired as to lead to gangrene, instead of healthy reparative action.

Pyœmia, the cause of death in the other three fatal cases (Nos. XIII., XV., XVI.), is by far the most usual cause of that result after primary amputation. In the case of David P., the symptoms did not make their appearance till the twenty-second day after the operation, the stump being nearly healed; but he had been depressed and anxious from the first, although the pulse and the healthy state of the wound appeared favourable.

In S.'s case, the pulse was quick and irritable from the first, but, in other respects, he progressed favourably until the tenth day after the operation; he also had been subjected to considerable mental excitement and depression of spirits.

In W.'s case, the symptoms arose at an early period, were less acute, and progressed slowly and gradually. In none of these cases was there any evidence of direct absorption of pus by the veins from the wound; in none was there any great amount of suppuration, nor was there any symptom of phlebitis leading to purulent circulation; and, indeed, in the only case in which a *sectio* was allowed, that of S., the femoral vein was found quite healthy throughout, and contained no trace of pus, but the liver was found studded with purulent deposits.

In all three cases, the ends of the bones were necrosed to a slight extent. Some have supposed that this, which has been generally noticed, might be the cause of the pyœmia, by favouring purulent absorption in the veins of the medullary structure. But I think it rather an effect than a cause, just as we see the unhealthy weak character, which the surface of the wound of the soft part assumes, when pyœmia sets in, evidently depending on weakened local action, consequent on the general depression of the vital powers, so the bone, from its structure, becomes very readily necrosed under these circumstances. Besides, necrosis after amputation frequently occurs without any symptoms of pyemia. I have no doubt that the disease in these cases arose from alteration in the blood itself, consequent on the general depression of the system, caused by the amount of shock and injury, and increased by mental irritation and anxiety.

To arrive at some conclusion regarding the states, physical and moral, which predispose to a fatal issue in primary amputations, I would now compare the circumstances of the successful and the unsuccessful cases respectively, and examine how far these may account for the difference in result.

It will be observed, that of the five fatal cases, with one exception, viz., that of the shoulder joint from secondary hæmorrhage (No. II.), all occurred in hospital practice. A considerable time had elapsed between the receipt of the injury, and the performance of the operation, and they had undergone the shock and fatigue of removal, most of them from considerable distances, prior to their arrival at the hospital.

The majority of the successful cases, on the other hand, were operated on at the place where the accident occurred, without undergoing any shock except what resulted from the injury; and in those cases where the patients were removed and brought into hospital from a distance, it will be noticed that either the nature of the injuries was peculiar, consisting of great injury of the soft parts and ploughing up of the texture of the bone, as in O.'s case; or similar severe injury of the soft parts, and impacted comminuted fracture, preventing motion of the broken bone, as in E.'s case; or else that all bleeding had been fairly arrested, and proper means used to prevent, as far as possible, all motion of the injured parts, and moderate the pain consequent on removal, as in G.'s case.

Of course, I would not wish to draw any general conclusion from such a limited number of cases, but I think that the circumstances just alluded to, are obviously in accordance with what we might expect, when we consider the effects of such injuries as those entailing a necessity for amputation.

By the first shock of the injury the patient is, as it were, stunned, the sensorial functions are disturbed, and his general feelings benumbed, so that pain is seldom complained of; but, as he revives and becomes more excited, his nervous sensibility becomes exalted. Disturbance in this state causes great pain, gives rise to shivering and feeling of sinking, and produces a marked effect on the state of the pulse. I had occasion to notice these symptoms in a considerable degree in G.'s case, where, although, as I have stated already, every means was used to make his conveyance as easy as possible, and although, the tibia being entire and the fibula supported, there could scarcely have been an injury less likely to cause jarring on motion, still the slightest jolt caused intense irritation and irregularity of the pulse. I witnessed the same in another case, in which I had occasion to bring the patient into town from a distance. If such be the consequences of removal, even under the most favourable circumstances, what must be the state of a patient subjected to a long exhausting journey in a cart or by train, with the broken bones jarring with every jolt, and bleeding slowly going on into the textures of the limb, as in cases X. and XV.? Again, in other cases though the distance of removal may not be great, the patient may be exhausted by delay, exposure, and consequent suffering, as in case XVI., where the accident had happened during the night, and the man was not discovered for some hours after its occurrence.

I have incidentally spoken of bleeding going on during removal, and this is a state I think not sufficiently attended to. I do not of course allude to active hæmorrhage from the wound; but very often when there is no appearance of bleeding externally, serious loss of blood is taking place into the torn tissues of the limb, quite sufficient to prove fatal to patients in the condition I have mentioned, and therefore the surgeon should always be on his guard to ascertain whether such is the case, and this is, I think, an important reason for avoiding all unnecessary delay in amputating. Under these circumstances, the patient is becoming every moment less able to bear the operation, for this form of bleeding is not one we can readily arrest. Compression should be made on the main artery, and on the wound, stimulants administered, and the operation proceeded with as soon as possible, if it seem warrantable at all.

The almost uniformly successful result of the amputations of the upper extremity is, I think, worthy of notice. For, although it is well known that all injuries of the upper extremity are more amenable to treatment than those of the lower, still, when the injury has been such as to require amputation, it is not so easy to account for the successful result. For if we consider that nervous shock, loss of blood, pyœmia, and mental depression, are the causes which most frequently lead to the fatal result after primary amputations, we could hardly *à priori* expect the results of such amputations to be so successful. The pain and shock in most of these cases were quite as great as in these of the injuries of the lower extremity. In several there had been great loss of blood. The exposed surface of forearm amputations is not only a very large one, but the flaps are composed of tissues likely to lead to suppuration, and the size and number of the veins, both superficial and deep, would seem likely to favour phlebitis and purulent absorption. In several of the cases recorded, it will be noticed, great constitutional disturbance followed the operation, especially in case IX., in which the amputation was performed at the carpo-metacarpal articulation. And yet, although all these apparently unfavourable conditions be present, it is comparatively rare that such operations are followed by fatal results.

Amongst the various predisposing causes leading to unfavourable results in primary amputation in civil practice as compared with military, are the moral influences of the different circumstances in which, in such cases, the civilian and the soldier are respectively placed. "A tradesman," says Sir G. Ballingall, "who has perhaps an indifferent constitution, and a wife and family dependent upon his exertions, is admitted with an injury requiring amputation, which may be the result of an accident originating in intoxication, ignorance, or folly, and by which he finds himself suddenly reduced to misery and dependence; while the soldier, again, with a constitution originally sound, and accustomed to contemplate such an accident, loses his limb in a good cause, under circumstances creditable to himself and duly appreciated by his country, from which he is certain of a pension for life."

Now, these appear very satisfactory and obvious reasons why mental depression and anxiety might be expected to be more frequent in the one case than in the other. But, whilst I consider these moral states as most important, I believe it will be found very difficult to estimate correctly their influence, except in regard to individuals. For so much depends upon the natural mental constitution, the education, habits, and age of each, that when we come to examine the question closely, it will be found very difficult to form any general deductions in regard to them.

The class most liable to such injuries is not in general remarkable for habits of thoughtful calculation as to future possibilities, consequently, such opinions as that I have quoted are rather as to what we might expect to be the state of feeling, than what we actually often find to be the case. Were patients generally much influenced by the consideration of all the evils which the loss of a limb might entail upon their future prospects, we might expect to see this feeling, and its unfavourable effects, most generally in amputations of the upper extremity; for surely no other mutilation involves so much prospect of misery to a labouring man or mechanic. Again, when we find a man situated as D. (case XII.), suffering from the loss of a limb, his wife struck down with fever, both lying helpless in a miserable room, themselves and their children dependent on the care of strangers, we would expect this depressing influence to exert its utmost power. Yet he seemed but little affected, and his case went on favourably to a perfect cure.

The two cases in which the bad effects of mental depression were most obvious, are those of P. (No. XIII.), and S. (No. XVI.) In P.'s case the circumstances were peculiar; the man had, in former years, suffered the loss of the arm, and had felt painfully all the difficulties and privations which that loss entailed, and now, when advanced in life, he had lost the leg of the same side, he could not but feel to what a perfectly helpless condition such an unusual form of mutilation must reduce him, as depriving him of any means of supporting himself and his family. In the case of S. (No. XVI.), the patient's feelings were painfully excited by the conduct of a young woman to whom he was on the eve of being married, and who, immediately on hearing that he had suffered amputation, showed the depth of her affection by removing the portion of the furniture she had provided for their intended home. Previously to hearing of this, he had been in good spirits, and except that the pulse kept somewhat high, appeared to be going on favourably; this, however, completely depressed him, and seemed to predispose to the unfavourable result.

In such cases as these last, mental depression and despondency can hardy be overlooked as having an important influence on the results. Still, I repeat, we can draw no exact general deductions where so much depends on the mental constitution and temperament of the individual.

I think, then, a consideration of the different circumstances under which the subjects of primary amputations are admitted into public hospitals, sufficiently accounts for the apparently unfavourable results of civil surgery, and I feel little hesitation in saying, that were civil surgeons to record the general results of their primary amputations, and not merely the statistics of their hospital practice, the success would be found quite equal to that of military surgeons under similar circumstances.

In concluding these remarks, I cannot help adverting to the use which is sometimes made of the comparatively unfavourable statistics of primary amputation, as a warrant for the performance of certain dangerous operations of very doubtful expediency in cases of chronic disease. The advocates of such operations say to surgeons, why object to these operations when you do not hesitate to perform primary amputation of the thigh, the statistics of which show it to be so fatal in result? Now, not to say anything of the imperfect nature of the published statistics, both absolutely and as compared with those of the operations alluded to, the difference is just this; that in cases of operations such as primary amputations or for neglected strangulated hernia, however unfavourable the average result may be, the surgeon feels himself bound to perform the operation (not in itself of great danger) as affording his patient *the only chance of escape from an immediate and painful death*, and at least alleviating the patient's sufferings. On the other hand, in operations such as ovariotomy, the operation is attended with great and immediate risk to life, whilst the disease, if left to itself, may exist for years before it proves fatal.

ARTICLE III.—*Account of a late remarkable Trial for Poisoning with Arsenic.* By ROBERT CHRISTISON, M.D., Professor of Materia Medica and of Clinical Medicine in the University of Edinburgh, and Ordinary Physician to the Queen for Scotland.

(*Continued from page* 632.)

THERE can be no question, then, that Mrs Wooler was poisoned with arsenic.

There is no reason to doubt that the poisoning commenced at the beginning of the month of May. For, on the 8th, the symptoms were such as arsenic commonly developes, but not till after the lapse of a few days; and they continued uniform until only a few days before death, varying indeed in degree, but not in kind, or at most by additions similar in kind.

There is as little reason to doubt that arsenic was the cause of death. The symptoms, preserving their original character, advanced, with occasional remissions, yet progressively on the whole, till five or six days before death; at which period were superadded some of the remarkable local nervous affections which not unfrequently attend the slow action of this poison. The ingenuity of some journalists has endeavoured to raise doubts about the immediate cause of death; but no one could well do so, who is both toxicologist and physician. It is said the lady was consumptive, and may have died of consumption, although poisoned. She was, in a pathological sense, consumptive certainly; but the phthisis was dormant: There were tubercles, and even a cavity; but the latter was dry, and both were inactive. It has been also suggested that fatty liver may have killed her. But the symptoms were never those of diseased liver; and the mode of death was entirely different. With more plausible and horrid ingenuity, some would refer the final symptoms and death to strychnia, which was one of the poisons found in the house. The tetanic spasms were neither violent, nor paroxysmal, nor universal, as when they are brought on by strychnia; neither did they affect especially the muscles of the trunk, and produce opisthotonos, which is invariable in fatal cases.

This, then, was a case of death from poisoning with arsenic, extending through eight weeks, complicated with pulmonary tubercles and fatty liver; but, so far as can be seen, not even modified by such complication.

In its whole circumstances, the case supplies the strongest presumption which can arise, in absence of direct proof of administration, that the poison was taken repeatedly, and for the first weeks at least, in small doses. For the illness did not begin with the violent effects of a large dose. It advanced so slowly, that for a good many days the lady was able to move about. There were occasional remarkable exacerbations, easily understood if arsenic was occasionally taken. Arsenic, besides being found readily in many organs after death, was secreted with the urine during at least fourteen days before death. Therefore, the poison must have been taken repeatedly, otherwise the symptoms could not have been kept up so long, nor the arsenical impregnation of the texture and urine so long maintained. But how often it must have been taken, no one can pretend to say with any probable approximation.

Death having been caused by repeated small doses of arsenic, what was the agency by which the poisoning was brought about? Was this accident? Was it design on the part of the lady herself? Was it the work of another? and of whom?

It has been urged that the functionaries of Darlington were not sufficiently careful to exclude the possibility of accidental poisoning by their inquiries. They deserve surely the greatest credit for excluding entirely the most natural source of accident,—adulteration of the medicines prescribed, or mistake in compounding them. A great number of remains of medicines in the house, and samples from the stock made use of, were analysed by Dr Taylor, without arsenic being traced in any of them. Perhaps the like care might have been advantageously extended in other directions. But at the same time it must in candour be allowed, that no conjectural mode of accidental poisoning has been hitherto propounded, which deserves serious consideration. The newest—which is worthy of mention chiefly because it has been admitted into a medical journal—is, that there might have been arsenic in the starch, which may have been used for the injections. But the symptoms were developed before injections had been used at all; and the only mode pointed out for such accidental adulteration of starch—the occasional use of arsenic for protecting seed-wheat from the attack of insects—is a far-fetched explanation indeed. How could the little arsenic, employed for sprinkling seed-wheat, be put through the process of elutriation in starch-making, and yet impregnate dangerously the small half-drachm or drachm of starch used for preparing opiate and astringent injections?[1]

It is a favourite idea with some, that the lady may have designedly taken arsenic at her own hand. No one can seriously suggest that she may have done so for the sake of destroying herself. Not a trace of any such intention appeared in the evidence; and slow poisoning with arsenic is an inconceivable choice of the means of suicide, except in the case of insanity, which is here entirely excluded by the lady's character and conduct.

But it has been suggested that, in imitation of the pretended arsenic-eaters of Styria, who are said to use arsenic habitually, after the manner of the opium-eater, for the purpose of clearing the skin, heightening the complexion, and improving the wind, Mrs Wooler may have secretly resorted to this practice, and died from giving it up, in ignorance of the danger of so doing.

What a mess of absurdity is here! which, however, must be disposed of seriously, for the sake of the tale at the bottom of it.

Had the statement been, that the lady, misled by the story from Styria, may have rashly taken arsenic for the purpose mentioned, and died straightway of its ordinary consequences, the conjecture might have passed as ingenious, and have served, perhaps, as an antidote to a very dangerous, ill-advised announcement of a doubtful fact, which has lately run the round of sundry unprofessional publications. To such a form of the statement, it would be a sufficient answer, that the unfortunate lady seems to have been too amiable and right-thinking a woman to perpetrate such an act of folly; that the Styrian romance being recent in England, she must have got the arsenic recently, in which case the purchase of the ounce phial of arsenical solution, or rather, since that was not nearly enough, the purchase of several such ounces, must surely have been traced in the urgent conjuncture which followed; and that her concealment, after discovering her mistake, of the most material part of her case from her medical attendants, throughout a long and cruel illness of two months, is inconceivable.

As to the actual shape in which the suggestion has been put, I presume that all medical men, experienced in the use of arsenic as a remedy, will treat the story of the Styrian arsenic-eaters as a pure fable. It is undeniable that, as physicians use it, a dose of a sixteenth of a grain twice or thrice a day, given for the cure of certain chronic cutaneous diseases, will generally begin in four or five weeks to excite symptoms, which, if neglected, will lead on to poisoning; and that the human body, instead of becoming habituated to these doses, as in the case of opium, tobacco, and some other vegetable poisons, acquires, in reality, a greater, and not a less, sensitiveness to its action. Nevertheless, we are asked to believe that the Styrian mountaineer comes, by long practice, to take so much as three or four grains daily, not only without injury, but even with the effect of heightening the complexion, freshening the countenance, and improving the wind, so that no mountain steep is long enough to blow him; and that, in fact, he only sustains injury when he abandons the habit; and then truly he is apt to die.

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[1] Since this paper was read in the Edinburgh Medico-Chirurgical Society, Dr Taylor has kindly informed me, that he has examined the stock of starch used for the injections, and found it free of arsenic.

One is entitled to expect that so novel and startling a fact, so dangerous if false, so revolutionary if true, would be admitted only upon proof proportioned to its improbability. Far from it. Like other marvels, the more marvellous, the more facile its reception. It is picked up in a province of a country where medical men are more numerous, more learned, more inquisitive, more addicted to inquire into the wonderful, than in perhaps any other country in Europe. Nevertheless, the first and only authority for the fact, in its details, is a professed traveller, Von Tschudi; who, after visiting the New World, and describing its wonders, returns to retail even greater wonders in the Old. So far as I can discover from a French translation, and an English abstract—for I have not yet been able to see the original—Von Tschudi describes merely what he was told, and personally tested nothing. He did not even see any clear-skinned Styrian take his frightful dose, or afterwards scale his lofty mountain. Yet, upon such sorry authority, the fact appears, without challenge or hesitation, for the first time, I believe, in detail in an English dress, as an article in *Chambers' Journal.* Thence it is transferred into various other public channels of information, gathering as it rolls, till at last one source of intelligence for the community apprizes the world, that "it is a very common practice in some parts of the continent—in Germany, Hungary, and the Tyrol—for persons of all classes to take arsenic in minute quantities as a tonic and stimulant!"

The preceding considerations leave no great encouragement to entertain the proposition that Mrs Wooler was poisoned either by accident or by her own hand. Of the two, the latter appears the less probable. But both are so very improbable, that it is needless to spend time in splitting hairs on the question between them.

There remains the third view. Was she murdered? Were the two other agencies absolutely excluded, it would follow, of necessity, that the real agent was a murderer. But, is the direct evidence adequate to prove murder against a party, either known or unknown? This question it is impossible to review with the necessary freedom in the present contingency. The prisoner was found by the jury not guilty; and I agree with their verdict. The judge held him proved to be innocent; and that opinion I shall not gainsay. Baron Martin has been taken severely to task by the public prints, for adding, in expressions wrongly reported, but now admitted to amount to the statement, that had he been inclined to "indulge in mere surmise and fancy, not the prisoner, but some other person, would first occur to his mind." I cannot agree with him in this. I believe I know the whole evidence, brought forward not merely on the trial, but likewise at the coroner's inquest, and at the inquiry before the magistrates. I even know a good deal of the dark tales and guesses of the neighbourhood,—a kind of information of which Baron Martin probably knew nothing; nevertheless, if any specific individual may be understood to have been in the Judge's eye—which, however, seems not clear—I can only say, I have no idea who is pointed at.

It is plain that nothing more can be made at present of the question of crime or a criminal; and that nothing farther will be made of it, unless Providence shall be pleased to lift, by force of new facts, the veil which now envelopes it.

In the course of the trial, and likewise in the preliminary proceedings, a point in medical ethics was incidentally mooted, which has since excited great attention, and much criticism, both in professional, and still more in unprofessional, quarters. It deserves attentive consideration here, because it is a matter of grave practical importance, and I am closely concerned in the conduct which gave rise to it.

The medical attendants of Mrs Wooler began to suspect arsenical poisoning on the 8th of June. On the 17th they freely intercommunicated their suspicion. Their suspicion, at the same time, tended to the husband as the agent. On the 23d, they consulted me by letter as to how they should deal with it. On the 25th, immediately on receiving the letter, I advised them not to divulge it till they had more decisive evidence. On the 27th the lady died, before that advice could reach them. Immediately after her death it was avowed.

Now, these gentlemen have been rated by the prisoner's counsel, censured by the judge, and condemned by a great part of the daily press,—which in all parts of the country has properly taken deep interest in this case—because they did not declare their suspicions. And the reason assigned is, that had they done so, the farther administration of poison might have been stopped, and the life of their patient saved.

The particular question thus arising, involves a general principle of no little magnitude, which it behoves the medical profession to review and settle, if possible. We have the aid of the opinion and advice given on the trial, by one who is well entitled by his place to offer it; and we have since had the benefit of the dictation of the newspaper press, which looks on itself as at least of no less authority. But, strange to say, neither the one nor the other seems for one moment to have thought that there is a third authority well entitled to be consulted, and perhaps paramount upon such a question to either; and that is the medical profession itself. Physic, it is well known, has a code of ethics, so settled in numerous details by long usage, and the express writings of some of the wisest of its fathers, that their successors can be at no loss, with the aid of common sense, to decide, by reference to the past, any questions arising in the future.

What, then, is a medical man's duty, when he suspects that his patient labours under the operation of poison?

There are various degrees of suspicion. A physician being puzzled with the nature, grouping, and course of the symptoms in a case, suddenly the question starts up unbidden before him—Might not poison produce them? But, for a time, he thinks no more of it. This is suspicion—in the lowest degree—" the first motion"—but suspicion, nevertheless. Presently the same idea crosses him again, shaped now by the farther progress of the case into the fact, that arsenic might explain all. Natural disease, however, or a combination of natural diseases, might equally supply an explanation; and so he dismisses the idea a second time from his mind, or, for a moment, thinks merely of the fact at which he has arrived as a curious coincidence in the manifestations produced by quite different morbid agents. But he has arrived at suspicion of a deeper shade. By and by, casual observation, which, with his very peculiar opportunities, he cannot elude, forces on his notice non-medical incidents, which point at a guilty agent, probably among those who minister to his patient's wants and helplessness, possibly a relative, and very possibly even the nearest in life. His heart, however, revolts at the supposed atrocity, and for a time he repels the thought as too odious. Thus at length suspicion truly possesses him; still, however, " like a phantasma, or a hideous dream," vague, and possibly altogether erroneous. Closer observation, new facts, medical, or moral, or both, embody the phantasm into a substantial shape. He is now thoroughly roused; he resolves to turn his fears to certainty, or banish them entirely; he therefore proceeds to examine the urine. Suspicion exists no longer: arsenic is there; and his patient has been positively poisoned.

Such was the situation of the medical attendants in the Darlington case; and such will it generally be in cases of the same kind.

It is odd that no critic has given them credit for having entertained suspicions; and yet there was great professional acuteness in having suspected poisoning in such circumstances.

What were they to do with their suspicions? According to Mr

Baron Martin, in his charge to the jury, as reported in the best report I have seen of the trial, "when the idea of poisoning struck them," they ought to have communicated their suspicion to the husband, if they did not suspect him; and if they did suspect him, "they ought to have gone before a magistrate, and not have gone on, from the 8th of June to the 27th, seeing the woman murdered before their eyes."

I would fain trust there is some error here. I have not that faith in the accuracy of newspaper reporters, which the newspaper press itself, and its uncompromising admirers claim for them. At the same time, we have here a plain statement, the accuracy of which has not yet been questioned, and which has been the authority for a whole host of newspaper writers censuring the three medical gentlemen of Darlington. I hope, however, that, for the peace of society, the credit of our profession, and the comfort of its members, medical men will be guided in these delicate circumstances by a different rule of conduct.

According to the Judge, they ought to have imparted their suspicions "as soon as the idea of poisoning struck them." I apprehend, however, that, as in important affairs of life generally, where opinions involve grave practical consequences, a physician is bound not to divulge such perilous ideas until they acquire substance. Baron Martin seems not to have been aware that "ideas" of poisoning will now and then occur where they are groundless; and that realities, such as the case of Mrs Wooler, are very rare. A mere idea of the kind—a suspicion—will not warrant avowal on the part of the physician. He is bound, at all events, first to sift his suspicion to the bottom, and to submit it to a decisive test, if possible. But Baron Martin seems also to have not been aware, that in poisoning, once fairly suspected, a decisive test is generally within reach; probably always when poisoning is slow, and arsenic is the poison; for arsenic will probably be always discoverable in the urine, even if not found in vomited matters or remains of food and drink.

Now, the medical gentlemen of Darlington acted on these principles. Their suspicions, at first discarded as vague, became at length fixed and substantial. They then proceeded at once to test them by chemical analysis. The result was ambiguous; and no wonder; for the inquiry was one of exceeding nicety—another point which the Judge appears not to have been aware of. They therefore applied for aid. Unluckily there was none at hand. That was not their fault, but the fault of the mal-organisation of our profession, and the fault of the legislature for having so long failed when called on to organize and elevate it. Were they, in the meantime, on this account to divulge their suspicions? I do not see that they were in that respect placed in altered circumstances, so long as they had no security that their suspicions were not erroneous. On the contrary, they knew that a decisive test was in action; and they waited for the result. It is true that, while they thus waited, fresh symptoms made the chemical inquiry almost superfluous. But this was only a short time before death ; when no assurance as to the cause could any longer avert the inevitable effect.

It is surprising that no critic has yet touched the turning point of the ethical question in this case. The medical gentlemen were unable at the crisis to apply conclusively, to their own satisfaction, what they rightly judged to be the *experimentum crucis.*—Their analysis yielded, as expressed in their letter to me, " very ambiguous results."[1] Are they blameable for this? Certainly not. The analysis was so delicate that it may be doubted whether there are now a dozen medical practitioners in England who could have applied it with the confidence, and quickness, and probable success required for elucidating so peculiar a case.

This remark, if just, leads to very serious considerations of a general nature.

No one acquainted with the condition of medicine in its several branches throughout the British Islands can entertain any doubt, that country districts, and towns generally, even towns much larger than Darlington, do not present scientific resources at hand to meet the exigencies of such a case as that of Mrs Wooler, and others which will occur to everybody. I do not think that the present organisation of the medical profession can supply the remedy. The chemical education of medical practitioners has been improved of late, and that of pharmaceutic chemists is undergoing improvement. But the qualifications of both are still much below what are needed for carrying on an inquiry of great nicety with that certainty, facility, and despatch which are necessary for eliciting the truth with due speed. The defect is a serious one. For the public are now fully alive to the existence of poisons and modes of poisoning, previously known only to men of science, and demanding refined analysis for their detection. Hitherto, for the purposes of detection, science has kept far a-head of practice. It has done so most remarkably in the very kind of poisoning with which we are presently concerned. For slow poisoning with arsenic, the most refined to carry out, is now probably also the most certain of detection. But the requisite science is confined to a few, and therefore the country generally may lie ere long at the mercy of any one who may prostitute his professional knowledge, or may expressly acquire that knowledge, for the perpetration of the most fearful of crimes.

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[1] I am disposed to ascribe the unsatisfactory results of the experiments of Mr Henzell to the prevalent preference for the process of Reinsch over that of Marsh. After long experience, the latter has appeared to me preferable in a very delicate analysis. That of Reinsch, when the arsenic is very minute, yields on copper a dark-grayish-black tarnish, generally with little lustre, and therefore not satisfactory. When the tarnished copper is heated in a glass tube, a tube so large must be used that the arsenic is not sublimed in the metallic state, but is oxidated at the first. And, for the same reason—the size of the tube—the oxide is apt to be so scattered as to make the formation of characteristic crystals uncertain. But with the modification of Marsh's process, advised by Berzelius (*see Treatise on Poisons 4th Edition*, p. 269), the whole arsenic is collected in a very fine tube, in a sharply-defined metallic ring, invariably brilliant like polished steel ; and owing to the narrow diameter of the tube, there is no risk of the oxidation of the metal being attended with so much diffusion of it as to prevent the formation of octaëdral crystals, easily ascertainable with a microscope of four or five powers. This method, it is true, requires a peculiar apparatus ; but I doubt whether any one ought to undertake such delicate medico-legal researches, who is not supplied with a proper toxicological apparatus. The cheapest and easiest to manage is a six-ounce bottle, perforated by a small hole near the bottom, and supplied with a cork and small stop-cock, the fine exit-tube of which is bent at a right angle. The bottle is fixed temporarily by two wedges of cork in a cylindrical glass jar of such size, that when the contents of the bottle are expelled around it, the interspace holds all the fluid, but no more. The glass tubes used for reduction of the escaping arseniuretted hydrogen, and which are best adapted to the brass tube of the stop-cock by a fine tube of vulcanized caoutchouc, must be made of Bohemian glass, or other glass without oxide of lead. I have instructed Mr Stevenson, philosophical instrument-maker, Lothian Street, to make such an apparatus ; which, with a dozen glass tubes, will cost about seven shillings and sixpence.

A remedy can scarcely be supplied by the Boards which regulate the education of medical practitioners. Some undoubtedly still neglect chemistry too much in their requisitions. But, can any of them reasonably exact of mere medical practitioners at large, that scientific knowledge and practical skill in chemistry which are here indicated to be wanting? Not, at all events, until the legislature and the public consent to hold out the requisite encouragement, by enlarging their privileges and raising their position. The purely medical studies of the practitioner now require too elaborate an education to allow of this additional exaction being imposed. There is, indeed, no probable remedy, so far as I can see, except the division of labour; by which chemico-legal duties, separated from the medico-legal, may be put into the hands of the pharmaceutic chemist, to whose province such duties will be appropriately attached, so soon as his education and his position in society in this country shall be duly elevated. This is the rule abroad, in France and Germany, in Germany particularly, where there is scarce a little town without a pharmaceutic chemist, who would have settled the Darlington case in a short time.

Baron Martin not only lays it down, that the Darlington gentlemen ought to have divulged their suspicion as soon as the idea of poisoning struck them; but likewise that, if their suspicion fell upon the husband, they ought to have divulged it to the civil magistrate. On the other hand, a professional critic, in a medical journal, refers for the right rule to his own example in a similar case, when he divulged his suspicion to the criminal husband himself.

Let us see what are the natural consequences. In the latter alternative, the guilty agent abandons his purpose for the time; and, in the most favourable event, his victim escapes destruction, and a monstrous criminal is let loose into society, and without punishment. In the other alternative, during the time which would be lost before the bewildered magistrate could settle how to act, the criminal agent, whoever that might have been, possessing the skill apparent in the case as it stands, would have removed all traces of his design. The suspicion, indeed, might have been altogether erroneous. But, assuming that it was true, the means of testing it would have been lost; and, along with this, would have been lost the professional character and fortunes of the authors of it. We are bound to receive the advice of Baron Martin with great deference. But, if the procedure he authorizes were the right one, there would surely be some actual precedent for it. I am not aware, however, that among the many instances of suspicion of poisoning constantly occurring in this country, there ever was one in which the aid of the magistrate was called into requisition during the life of the sufferer.

There is a third course, and, in my opinion, it is the fittest of all. When the medical attendant is satisfied of the fact of poisoning, he should communicate his conviction to the patient himself. His predicament, in every other way, is so embarrassing, that he ought not to be deterred by the chance of injury to his patient, from making even so dreadful a disclosure. He will have thus taken the surest preparative step towards preventing a repetition of the poisoning. Besides, the risk of injury from important disclosures in dangerous illness, is less than many may naturally be apt to suppose. In fact, in cases of poisoning, it will be commonly found that the patient is not unaware of the real state of things, and that he has been concealing his own convictions of poisoning. And not only so. It may farther appear that he suspects the guilty agent, and can fasten the crime upon him, and will do so on finding that his physician has penetrated his secret. We have an example in the remarkable case of Mr Blandy. When his physician, Dr Addington, had convinced himself that the old gentleman was dying of the effects of arsenic, he broke the truth to his unfortunate patient, who, thereupon, disclosed his whole domestic horrors, by fixing the agency on his own guilty daughter. I have elsewhere cited this remarkable case as an instance of "discreet and able conduct under trying circumstances;"[1] and would advise every one to study it, who has an opportunity of perusing the trial of the culprit, in *Howell's State Trials* (vol. xviii.). The Darlington gentlemen did not follow this course, because they dreaded the overwhelming effect on their exhausted patient. This was the course, however, which I was prepared to advise so soon as I found arsenic in the urine, had it not been too late. I still think that in similar circumstances the risk should be incurred. Indeed, I see, as a general rule, no approvable alternative.

It remains for me to notice only one other incident of the proceedings in the trial of Mr Wooler. It is the most disagreeable of all to approach. But a notice of it is a plain duty, owing to his brethren by every medical man who publicly takes cognisance of the case.

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[1] Treatise on Poisons. 4th Ed., p. 98.

The counsel for the prisoner thought fit, in the exercise of his vocation, to assail the three principal medical witnesses, Dr Haslewood, Dr Jackson, and Mr Henzell, with a license and acerbity unparalleled on any similar occasion in a British Court of Law. His address to the jury seldom approached the evidence, or prior conduct, of these gentlemen, without some word of contumely. One of them is sneered at as "childish, silly," and is charged with having "published what he knew to be a falsehood." Another was guilty of "hypocrisy,"—of having "deceived and wilfully deceived." The conduct of all three was "disgusting to every one acquainted with the medical profession." And in a climax, the counsel declares their conduct "infamous,—I use it," adds he, "and repeat it, the infamous conduct of the medical men,"—"infamous in the extreme," —so much so, that "but for that infamous conduct, the poor woman would now be alive; but for that infamous conduct, this trial would never have been called for." And, nevertheless, all this tirade was a pure exercise of the imagination.

I am not unaware, and medical men generally, who may all be exposed to be similarly insulted, ought to be aware, that one of the pleasant fictions of the law—in this case made a reality—is that unlimited liberty must of necessity be allowed to the prisoner's counsel in the treatment of the witnesses for the prosecution. No matter how manifest a scoundrel he may have for his client, or how estimable a member of society for a witness, he may, in his cross-examination and address to the jury, make the two exchange characters to the best of his ability, and the utmost of his liking. We are called on, it seems, not to feel sore when we encounter such usage; and, assuredly, there would be great danger in resenting it. Even should the counsel enforce his denunciations, by protesting his own belief in the justice of them—and Mr Wooler's counsel approached very near this acme—no fault must be found. We are expected to look upon our tormentor as an actor merely,—and possibly to applaud him as such, if successful, with the best grace we can command.

But this liberty of speech, unless exercised with discretion and due forbearance, degenerates into licence. Every dispassionate person will feel that it was so abused on the present occasion. Every one who studies the whole case attentively, must come to the conclusion, that the severe censure which was passed on the medical witnesses, by the prisoner's counsel on Mr Wooler's trial, was alike uncalled for by their conduct while attending at the bed of sickness and death, by the evidence which they gave at the trial, by the exigencies of the counsel's own position, or by any probability of an influence on the minds of the jury. Mr Sergeant Wilkins' client was safe enough without the infliction of such injury on defenceless, upright, honourable men; nor is it easy to see what other justifiable object was to be attained by it.

The medical profession will look to the Bench for protection against superfluous, undeserved, unmeasured abuse. I feel certain they will not look in vain in Scotland. In England the case is said to be different. Certainly, on the trial of Mr Wooler, the Judge, as reported, very feebly repelled the unwarrantable assault of the prisoner's counsel. Courts, however, ought to weigh well the consequence. For it is not to be supposed that medical men, if not protected in the discharge of a duty at all times arduous, anxious, and disagreeable, will not do all in their power to circumscribe their sphere, and even avoid all participation in a department of their profession, which, in any circumstances, presents attractions to few, and is repulsive to many.

ARTICLE IV.—*Case of Chronic Hydrocephalus connected with Cancer at the Base of Brain.* By J. WARBURTON BEGBIE, M.D., Physician to the Royal Infirmary. With an account of the Morbid appearances, by D. RUTHERFORD HALDANE, M.D., Pathologist to the Royal Infirmary Edinburgh.

(*Read to the Medico-Chirurgical Society, December* 19, 1855).

THE subject of this case, aged (at the time of his death) eleven years, was admitted into the Royal Infirmary, upon the recommendation of my friend Dr Foulis, on the 26th September 1855, and died on the 12th of November. The following history, the chief features of which I obtained from the mother of the patient, shortly after his admission into the hospital, but many of the more minute particulars from various sources since his decease, I beg, in connection with the very accurate account of the remarkable appearances found upon dissection by Dr Haldane, to offer to the Society, in the belief that the record of a case, in many points of view so instructive, is likely to interest its members.

J. N. was born in the parish of Duddingstone. His father is an agricultural servant, now aged 50, his mother aged 45, both healthy persons, and belonging to families, some of the members of which have attained a remarkable longevity, and have apparently been free from any hereditary disease. The original number of the immediate family was *seven*, and of this *five* survive, at the ages of 18, 16, 13, 8, and 5, all ruddy, healthy looking boys and girls. The only other death which has occurred being that of a sister, aged five years—and now seventeen years ago—from convulsive fits, which were supposed to result from a severe blow sustained upon the head some time previously. At the birth of J. N., two peculiarities were noticed, *one*, it may be presumed, of no interest or importance in connection with the case, a ranula, which, within a few days, was appropriately treated and discussed; *the other* of very different signification and import, namely, the *left* eye being very perceptibly smaller than the right, while the latter was of the ordinary or natural size; besides being smaller, it appeared more deeply set in the orbital socket, and very frequent lachrymation gave evidence of its being weaker. In a note, with which I have been favoured by Mr Hill of Portobello, who carefully watched the progress of the case throughout, he says, "the expression and appearance of the left eye was always different from the right, and in early infancy its total want of vision was obvious." It is probable that want of sight in the left eye was congenital, though the determination of its absence was not settled before the age of three, when Mr S., upon whose farm the father of the patient was employed, ascertained that he could not distinguish a watch and certain other objects with which he was familiar, when the right eye was closed. At birth nothing peculiar was noticed in regard to the size of the head; and with the exception of the frontal region being thought broad, nothing abnormal in its conformation. The mother is satisfied that the fontanels were not longer in closing than in the heads of her other children. Between the ages of three and four, and after the blindness of the left eye had been determined, the following remarkable changes, which I shall first notice in the words of Mr Hill, occurred:—"Both eyes became more prominent, and the left one projected in an extraordinary degree, so as to become at one time completely pushed out of its socket, the eyelids constricting it behind, and giving rise to the most extreme suffering. With some difficulty I was enabled to place it within the eyelids again, and shortly after a large quantity of pus was discharged, which had been collecting behind the eyeball, and the eye gradually assumed the appearance it afterwards retained." The discharge appears, from the testimony of his parents, to have continued during about eight days. About the same time he began to complain of pain, always referred to the back of the head, and a perceptible increase in the size of the cranium occurred. At five years of age, he had measles severely, being the only febrile ailment he ever suffered from, with the exception of a very mild attack of scarlatina, about twelve months before his death. The sight of the right eye, which, in his fifth year, had been becoming gradually impaired, was, in his sixth, totally lost. During these years, besides the kind care of Mr Hill, the little patient was seen by several eminent medical men in Edinburgh, who concurred in believing, that the remarkable appearance presented by the left eye, and the want of vision in both eyes, depended on the existence of a tumour within the cranium. All further concurred in a most gloomy prognosis. In his seventh year, with his head gradually enlarging, and now manifestly abnormally large, he enjoyed good health,—his bodily frame developed proportionally more than in his earlier years,—he played about, joined heartily in the games of other boys,—was seldom noticed to be taciturn,—and with the exception of the not unfrequent attacks of severe pain in the back part of the head, had no complaint. These headaches were noticed by his mother to be very sudden in their occurrence,—he would join his companions at play, and unexpectedly return to the house, complaining of severe pain always in the same locality, when, after rest for a short period in the horizontal posture, he would rise and again join in play or amusement. At a little more than seven years of age, his health was so good, that, acting under the advice of some kind friends, his parents entered him as a boarder at the "School for Blind Children" in Gayfield Square. Here he continued to reside till very nearly the time when he came under my care in the Infirmary last September. At the Blind School he was frequently seen by Dr Foulis, who very prudently enjoined upon the teachers the propriety of not forcing him on too speedily in his instructions, and particularly cautioned all with whom he there came in contact, to avoid all possible injury to his then too evidently abnormally enlarged cranium.

Upon making inquiry at the Blind School, the teacher, Mr Haig, very kindly favoured me with the following particulars regarding the progress J. N. made while there. He entered the Institution in September 1852, when the teachers and servants of the school were much struck by the appearance of his head. He occasionally complained of pain; but during the three years he spent there, his health was as good as that of any of the other children. He took the same amount of exercise. He was rather selfish and stubborn in his disposition. His education was begun in the school, from the alphabet. It very soon became evident that he was a boy of good abilities,—decidedly above the average of the boys who have been scholars there. He made rapid progress; and agreeably to the advice of Dr Foulis, he was kept back, rather than encouraged, as would have been the case with another boy. For reasons which will appear, when Dr Haldane reads his account of the dissection, I made very special inquiry regarding the integrity of the other senses, as well from Mr Hill, as from the parents of the boy, and his teacher in the Blind School. All agreed in stating that hearing was perfect; but Mr Haig felt quite certain that, for some time past, his sense of smell had become materially impaired. This was opposed to the belief of Mr Hill and the boy's parents; but it must be remembered that, during the last three years of his life, the teacher in the Blind School had a better opportunity of forming an opinion upon this point than even his parents, from whom, with the exception of a few week's holidays, he was absent during the whole of that period. Moreover, the illustration which Mr Haig gave me of the manner in which he determined the impairment of this sense, is very striking. It has frequently happened, he informed me, that when the children have been taking walking exercise, they have, as the blind are, of course, prone to do, placed their feet in dirt, or otherwise come in contact with offensive matter, and, on many occasions, J. N. has done so; while any of the other children who might have done this would have made the discovery for themselves, and remedied it accordingly, this boy never did so; and even after the circumstance was mentioned to him, it was difficult to impress it upon him, owing to the deficiency of smell. Occurrences of this kind, and of a similar nature, led Mr Haig to regard his sense of smell as decidedly impaired. In opposition to this view, it is right, however, to mention, that both the boy's parents, within a few months of his death, saw him smelling an apple, at least holding it to his nose, while they heard him speak of its odour being pleasant. The few weeks of vacation, during last autumn, J. N. spent with his parents; during the earlier part of it, they thought him looking well, though quite certain that the size of the head had very materially increased. Both parents had always regarded him as the cleverest child they had, and, on his return from the Blind School on this occasion, they were much gratified to find that his education had been very considerably advanced. He could now read the Bible with its raised character for the blind, while in knowledge of arithmetic and geography, he had made very considerable advancement. During the month of August, he played about with his companions, being overjoyed to find his way round about his father's cottage and the farm offices in its vicinity,—an occupation in which the blind boy was without a rival. In September, the headaches, from which he had never been entirely exempt, occurred with greater frequency and severity; and being rendered additionally anxious regarding him, on account of a strange drowsiness which frequently overcame him, his parents requested me to admit him into the Infirmary.

The following was his condition at that time. The great enlargement of the head was at once noticed, and the measurements were found to be—*over the vertex, from ear to ear,* 1 *foot* 2 *inches; circumference of head,* 1 *foot* $11\frac{1}{2}$ *inches.* The left eye was very prominent, but had a dull vacant expression, indicating the absence of sight,—so also the right, which was not prominent. Both pupils were large, but their size did not vary. Pressure over the prominent eye, even to a slight extent, caused much suffering; over the right eye, pressure could be borne. Hearing acute, no complaint of want of smell, nor any evidence of the failure of that sense existed. It was not, however, tested in the way that I now wish it had been done. Face full and somewhat florid. Head plentifully covered with a peculiar woolly looking, sandy-coloured hair. No imperfection in the osseous development of the cranium could be detected; on the contrary, everywhere the bones felt of the usual hardness and firmness. Frontal region broad and prominent. Articulation distinct, and voice loud in replying to questions. Body well covered; fingers and hands smaller than the size and age of the boy would have indicated. Perfect freedom in locomotion. Only complaint that of severe pain in the occipital region. Sleeps well, occasionally moaning. Appetite good. Bowels regular. Dejections and urine healthy. Respiration and circulation free from any evidence of disease. A few days after admission, the hair of head was removed, and a blister applied to the back of the neck, with some relief to the pain; but owing to its return, and on account of a degree of somnolency, accompanied by slowness of the pulse, he was cupped about the middle of September, and another blister applied, while he took small doses of calomel, until salivation was produced. This resulted in a severer form than was intended, and he suffered a good deal from the irritation it produced. Unquestionably, a considerable degree of relief from the headache followed this treatment, and no farther measures of importance were adopted, save keeping up, in a very mild degree, the action of the mercury, and the renewed application of blisters to the neck. The remarkable intelligence of the boy was a matter of daily observation in the ward, and he very speedily got reconciled to his hospital life, and became a particular favourite with the other patients. The special sense of touch was in him finely developed, as it generally is in the blind, and he frequently astonished gentlemen in the ward by the readiness with which he distinguished the different sizes of some keys which I carried in my pocket, and gave to him for that purpose.

The action of the bowels was always carefully attended to, and laxative enemata were frequently administered. He had never any sickness or vomiting. Occasionally he complained of giddiness as well as of pain in the head. For a week previous to the fatal event, he had been more than usually cheerful and happy, had expressed a desire to walk about the ward, and one day mentioned that his parents, who believed him to be now greatly better, wished him to return home.

On Sunday, the 11th of November, he was, to all appearance, in the same state as during the previous week. I saw him that day, and had a little conversation with him. In the early part of Sunday night he was noticed to be restless; but as his nights had formerly been disturbed, less attention was paid to that circumstance than might otherwise have been the case. Above five A.M. on Monday, the 12th November, he was seized with a violent convulsive fit, and became quite insensible. During two hours he had a succession of fits, then he became quiet, though never sensible. After a recurrence of another convulsion of great severity, about ten A.M., he expired. He was seen, before death, by my friend and house physician, Dr Moore.

Before the Society is put in possession of the very remarkable appearances found upon dissection by Dr Haldane, I would beg, very shortly, to direct attention to the few following points which appear to me of interest in the history of the case:—

1st, The evidence of *congenital* disease within the cranium, as marked by the peculiar aspect of the left eye, and by the want of sight in it, which, though not positively determined till the boy was in his third year, in all probability was absent from birth.

2d, The enlargement of the head, and distension of the cranial bones, was first noticed at the same time as the changes took place in the eyes, *i.e.*, between the third and fourth years, and very evidently point to the intimate connection existing between the tumour and the fluid, which thereafter continued to accumulate. "Chronic hydrocephalus," writes Dr West, "is a morbid condition met with in children at various ages, and coming on under a great variety of circumstances. Sometimes it is congenital, and is then often, though by no means invariably, associated with malformation of the brain. In subsequent childhood, an excess of blood in the brain, or its deficiency, or the existence of some impediment to the circulation through the organ and conditions, all of which have been found to give rise to the effusion of fluid into the cavities of the brain, or upon its surface." Admitting, as it indeed appears necesary to do, with Rokitansky and Vrolik, and with Dr West, that chronic hydrocephalus is not, in many instances, a mere passive dropsy, but that it may be the result of a slow kind of inflammation of the arachnoid, especially of that lining the ventricles; in the case now detailed, it is, I think, very evident that the effusion into the ventricle arose from the impediment to the venous circulation caused by a tumour, the nature and exact relations of which will be described by Dr Haldane. It is rare, says the lamented Dr Valleix, that chronic hydrocephalus, coming on a certain time after birth, is not found in connection with an organic lesion, which accounts for the collection of serum. Such are, for the most part, tumours of different kinds, cancerous, tubercular, cystic. Dr Robert Whytt, a former distinguished professor of medicine in the University of Edinburgh, seems to have been the first physician who directed attention to the possibility of dropsies of the brain being produced by the pressure exerted on the circulation from the presence of tumours. In his "Observations on the Dropsy in the Brain," published in 1768, the following passage occurs:—"A scirrhous tumour of the glandula pituitaria, or in any part contiguous to the ventricles of the brain, by compressing the neighbouring trunks of the absorbent veins, will prevent the due absorption of that fluid which the small arteries constantly exhale, and occasion a dropsy in the brain; in like manner, as a scirrhous liver, spleen, or pancreas, are often the cause of an ascites. As a proof of this, we may observe that M. Petit often found the glandula pituitaria scirrhous in those who died of a dropsy in the ventricles of the brain. In one case I met with, a hard tumour within the right "thalamus nervorum opticorum."

One of the most frequent causes of chronic hydrocephalus, according to M.M. Barthez and Rilliet, is the development of a tumour within the cranium, ordinarily tubercular, but sometimes also cancerous, or of some other nature. Of chronic hydrocephalus so produced, both these authors and M. Legendre have recorded instances.

3d, and lastly. It is important to note the great intelligence possessed by this boy, the full interest of which will, however, be better appreciated, when the details of the *post-mortem* appearances have apprized the Society of the amount of destruction done to the cerebral substance.

Sectio Cadaveris fifty-one hours after death.

External appearances.—No commencement of putrefaction. Head enlarged; forehead prominent. The measurements corresponded to those taken during life. The left eye was prominent, but otherwise appeared natural. The neck was a little fuller than usual.

Head.—When the scalp was removed, the ossification of the bones of the cranium was found perfect. The anterior fontanelle was quite filled up; there was a marked depression in that situation. The sutures (particularly the coronal and sagittal) were more marked than natural, but there were no ossa triquetra. The skull cap was very thin, this was particularly the case in regard to the frontal, the anterior part of the parietal, and the squamous portions of the temporal bones. The bone was generally diaphonous, and in places was scarcely more than a line in thickness. The dura-mater having been removed, the surface of the brain was found to be drier and paler than natural. The convolutions were much flattened out, and the intervening sulci were very shallow; this appearance was most distinct on the left side. There was an evident difference in the size of the cerebral hemispheres, the left being markedly the larger. Over the left hemisphere fluctuation was distinct, the right felt soft but solid. On slicing the brain, the left lateral ventricle was very soon reached, its upper wall being under half an inch in thickness; when opened into, a golden yellow coloured serum began to escape. The upper layers of serum were quite clear, the lower were dark and bloody. There was considerable difficulty in removing the fluid from the deeper portions of the ventricle, as the orifice of the pipette became obstructed by what appeared to be a membranous substance. The whole amount of serum in this ventricle was about sixteen ounces. On fully laying open the ventricle, it was found to be very much dilated; its anterior and internal part was occupied by a yellowish red, soft mass, on the surface of which lay several small loose undecolorised clots of blood. This mass, which was partially enclosed in a loose but tolerably strong membrane, appeared to arise from the floor of the ventricle; it was bounded, posteriorly, by the corpus striatum, but extended along the inner margin of this body, and went so far back as to press upon the optic thalamus. As the tumor bulged inwards in the direction of the right hemisphere, the anterior portion of the third ventricle, the septum lucidum, as well as what could be seen of the longitudinal fissure, were pushed over to the right side. The left corpus striatum, and the optic thalamus, though pressed upon by the tumor, were not involved in it. The whole lining membrane of this ventricle was thicker and tougher than natural.

On examining the right lateral ventricle, its anterior cornu was found very small, evidently from the pressure of the tumor; the posterior cornu was dilated, and, along with the middle cornu, contained about two ounces of serum, chiefly clear, but mixed with a little blood in its lower layers. The parts contained in this ventricle were quite natural. The foramen of Monro was about the size of the tip of the little finger, but appeared partially closed by a portion of the investing membrane of the tumor. The choroid plexus, in either ventricle, was natural. The third ventricle was scarcely enlarged.

The brain having been removed, a mass was found to project from the anterior part of the base, chiefly on the left side. This mass was of a yellowish red colour, and presented a nodulated appearance, some of the nodules being of the size of filberts or small walnuts, but projecting little above the general surface of the tumor. The tumor was accurately bounded, externally and posteriorly, by the fissure of Sylvius of the left side, towards the mesial line it extended as far back as to the corpora albicantia. Anteriorly it reached nearly to the extremity of the anterior lobe. It had not involved the anterior part of the right hemisphere, but had extended towards it, so that the longitudinal fissure was pushed over fully an inch to the right. Farther back, however, the tumor had involved the angular portion of the anterior lobe, situated between the fissure of Sylvius and the longitudinal fissure. The anterior part of the left lateral ventricle had pushed aside the right hemisphere, and so appeared to constitute a part of the base of that division of the brain. Small clots of blood were found along the margin of some parts of the tumor, particularly in the left fissure of Sylvius. Connected with the posterior edge of the mass, about an inch from the commencement of the left fissure of Sylvius, was a small tumor attached to it by a membranous pedicle. It had the appearance of a cyst growing from the investing membrane of the tumor. It was of the size of a large filbert, was of a reddish brown colour mottled with yellow, and had a close resemblance to the polished surface of some agates. Several small blood vessels could be seen to run along its surface.

The mass of the large tumor, as it appeared at the base of the brain, had a firm, almost gristly feeling, the lobules, however, felt soft, almost fluctuating.

The crus cerebri of the left side appeared longer than the other, and the pons was twisted upon itself, being pulled down on the left side towards the cerebellum.

On examining the base of the brain, the olfactory nerves, the left optic nerve, and the optic commissure, could not be made out, they appeared to have been involved in the tumor. The right optic nerve where it lay upon the crus cerebri was natural.

All the other cranial nerves were uninvolved.

On cutting through the tumor it was found to extend from the base of the brain upwards into the left lateral ventricle. Its lower surface was firm, and of a greyish pink colour, but the surface which appeared in the ventricle, as well as the nodulated portion, was soft. On gently squeezing the latter portions, a milky juice escaped. The cystic tumor connected with its margin contained about two drachms of thin bloody serum. The cerebral matter immediately surrounding the tumor appeared natural. The pituitary gland was flattened out, and appeared a little enlarged, but its structure was healthy.

The dura-mater lining the base of the skull, as well as the bones themselves, were healthy. The left orbital plate of the frontal bone was not thicker than card board.

The left eye was taken out and examined; the opening of the optic nerve into it was very small, the nerve itself was almost entirely atrophied. The cellular tissue behind and around the eye-ball was condensed and firm. The structure of the eye, lens, vitreous humour, etc., seemed natural.

The *neck* was not examined, but the thyroid gland was evidently a little larger than natural.

On opening the *thorax*, the thymus gland was found to occupy the anterior mediastinum; its inferior extremity rested upon the right auricle of the heart. It consisted of two lateral halves (the left being a little the larger) connected together by loose cellular tissue. It was softish, and presented the normal appearance of the unatrophied gland. Its greatest length was $3\frac{3}{4}$ inches, breadth $1\frac{3}{4}$ inches, its weight was 227 grains. The heart was quite healthy. The lungs were normal; they were not congested, their weight was 15 ounces. The bronchial glands were natural. The liver, spleen, and kidneys were quite healthy. The supra renal capsules were no larger than natural. The mesenteric glands were a little enlarged, but contained no abnormal deposit. The intestines were perfectly healthy, the follicular and agminated glands were distinct, but not enlarged. The bladder, prostate and testicles, were natural.

Microscopic Examination.—On examining a drop of the milky juice squeezed from the tumor, it was found to consist chiefly of round and oval nuclei, either loose, or imbedded in a very soft transparent substance. These bodies were about $\frac{1}{2000}$ of an inch in diameter, and contained one or two nucleoli and a little granular matter. In addition to these, though much less numerous, were cells of a round or oval form. These were from $\frac{1}{1500}$ to $\frac{1}{1000}$ of an inch in diameter, and each contained a nucleus exactly similar to those floating about. On the addition of dilute acetic acid, the cell walls became a little paler and more transparent; no change was produced upon the nuclei. The denser portions of the tumor contained much fibrous tissue, combined with a smaller proportion of the cellular elements. The tumor was found to be abundantly supplied with blood vessels, arranged in some places in loops and tufts.

On examining the fluid contained in the ventricles, only blood corpuscles could be detected.

On examination of the thymus gland, abundance of the ordinary corpuscles were seen, with a considerable intermixture of fat.

Remarks.—From the external appearances, as well as from the microscopical structure of this tumor, there can be no doubt as to its cancerous nature. It consisted, however, of two portions, one of which was much harder and firmer than the other. It is, I think, very possible, that the growth was originally of a non-malignant nature, a circumstance which would account for the slow progress it made during the first years of life. This tumor was pretty accurately circumscribed; it was generally perfectly limited, and though it had involved a portion of the other hemisphere, this was rather due to simple extension than to cancerous infiltration. As was formerly mentioned, it presented no tendency to involve the dura-mater or the cranial bones. It is also worthy of remark, that the tumor in the brain was the only local manifestation of the cancerous diathesis. According to Dr Walshe, the cases in which cancer in the brain is unassociated with the same disease in other organs, are about equal in number to those in which it is so associated. Judging from the history of the case, there can be little doubt but that the disease was congenital; it probably commenced in the internal and posterior part of the anterior lobe of the left hemisphere, consequently in the immediate neighbourhood of the left optic nerve. Hence the blindness which appears to have existed from birth. For a long time the tumor increased very slowly, a circumstance explained by the structure of its lower part being firm, and almost cartilaginous. The right optic nerve did not become affected for a period of at least five years. Previously to this, however, the head had been gradually enlarging. The hydrocephalus, which produced this enlargement, was evidently secondary, and was due either to obstruction to return of the blood, produced by the pressure of the tumor, or depended upon a gradually increasing amount of fluid, the result of repeated congestions. The complete ossification of the skull proves that the observation of the boy's parents was correct.

The most doubtful point connected with the case is as to the condition of the sense of smell. From the situation of the tumor, the left olfactory nerve must, I believe, have been affected from birth, the right, in all probability, not for some years later. Reasoning from the *post-mortem* appearances, smell must for some time previous to death have been utterly impossible. And it must be remarked here, that the loss of smell might very readily have escaped the attention of the patient's friends; for, granting that the special sense was destroyed, common sensation of the mucous membrane of the nostrils unquestionably remained. The circumstance of the boy taking pleasure in holding an apple to his nose, may have been the result of agreeable associations.

Judging from the history, the tumor must have begun to enlarge more rapidly within the last few months; this is explained by the soft structure of the recent growth. The immediate cause of death was, I apprehend, hæmorrhage from one or more of the blood-vessels, with which the growth was abundantly supplied; the appearance of the blood in the ventricle and elsewhere, indicated that it had been recently extravasated, while the occurrence of convulsions fixes the exact date, it being well known that, in the case of children, hæmorrhage into the substance, or upon the surface of the brain, far more frequently gives rise to convulsions than to paralysis.

The unimpaired condition of the boy's mind is highly interesting, as illustrative of the great amount of lesion of the deeper portions of the brain, which is compatible with perfect integrity of the intellectual faculties. The mere flattening out of the convolutions, appears not to prevent their grey matter from performing its functions.

In the account of the *post-mortem* appearances, I have alluded particularly to the condition of the thymus gland, as it has been noticed that in cases of sub-acute and chronic hydrocephalus, this body does not undergo its normal involution. In this case the thymus was considerably larger than is usual at the age of eleven years, and its fatty transformation had made comparatively little progress.

ARTICLE V.—*Histology of the Cholera Evacuations in Man and the Lower Animals.* By W. LAUDER LINDSAY, M.D., Perth.

THE following notes are not intended to embrace the whole subject of the histology of the evacuations passed during life, or of the fluids and solids examined after death, in cases of cholera in man and the lower animals, but refer only to a limited number of observations made by myself in the City Cholera Hospital of Edinburgh, towards the close of the year 1853. These observations have been, in great measure, confirmed by the simultaneous or subsequent labours of various continental observers, who have, since the date above mentioned, published valuable monographs on some hitherto obscure points in the natural history of cholera. In a few minor details only do our respective results differ; but as my object here is simply to enumerate facts, I shall not attempt the explanation of discrepancies, or the solution of difficulties, in regard to the bearing of observations on theories of the nature or cause of cholera. The latter is a subject indeed for which I do not think we have yet obtained sufficient or requisite data whereon to speculate with exactitude or advantage to science. The symptomatology and pathology of the cases upon which the following observations were made, have been already published in various medical journals during the year 1854.[1] It will be convenient to divide the subject-matter into two sections:—

I.—The histology of the vomit, stools and urine passed during life, and of the thoracic and abdominal viscera and their contents, examined after death, in *man;* and

II.—The histology of the same discharges, viscera or fluids in the *dog* and *cat,* to which the disease was communicated by artificial means.

I.—*Histology of the cholera evacuations, etc., in man.*

The chief histological elements observed may be shortly tabulated as follows:—

1. *Vomit:* 1. Ejected during life.
    - *a. Mucus:* fibrillated bands without or with granular corpuscles.
    - *b. Granular corpuscles:* probably chiefly mucus corpuscles and epithelial nuclei.
    - *c. Epithelium:* tesselated, globular, and cylindrical: perfect or variously abortive, or altered in shape—transparent, hazy, or granular.
    - *d. Debris of food.* 1. Vegetable food.
        - *a.* Fragments of epidermis: potato, oats, barley, cabbage, carrot, turnip, onion, sugar-cane, etc.
        - *b.* Fragments of parenchyma of several of same vegetables.
        - *c.* Isolated cells of epidermis and parenchyma, including, along with starch corpuscles, many of the "annular bodies," "cholera fungi or corpuscles" of recent authors.
        - *d.* Epidermic hairs.
        - *e.* Spiral and porous vessels, and uncoiled spirals.
        - *f.* Chlorophylle grains—isolated and aggregated.
        - *g.* Starch corpuscles of the potato, oats, barley, wheaten bread, etc.
      2. *Animal* food.
        - *a.* Muscular fibre of beef, etc.
        - *b.* Fish scales: Findon haddock, etc.
    - *e. Oily and fatty matters:*
        - *a.* Fluid: oil globules.
        - *b.* Concrete: fat vesicles.
        - *c.* Echiniform, or spiculated bodies.
        - *d.* Crystalline: filiform bundles—radiating masses.
    - *f. Crystallizable matters: salts, etc.*
        - *a.* Triple phosphates: chiefly in prismatic form.
        - *b.* Chloride of sodium: in broken cubes and irregular tabular masses, etc.
    - *g. Fungi:* *a.* Sarcina ventriculi: entire or partially disintegrated.
        - *b.* Mycelium and sporules of various kinds of mould.
    - *h. Animalcules* *a.* Vibrios.
        - *b.* Acari.
    - *i. Pus.*
    - *k. Compound granular bodies.*
    - *l. Molecular and granular debris,* variously coloured.

  2. Post-mortem contents of stomach.
    - Epithelium: conoid, fusiform and fibroid, and other elements of disintegrated mucous membrane, in addition to several of the above substances.

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[1] Chiefly in the *Association Medical Journal,* March 10, 1854, *et seq., Edinburgh Medical and Surgical Journal,* April and October 1854, and *Edinburgh Monthly Medical Journal,* August 1854.

II.—*Stools.* 1. Passed during life.
- *a. Mucus:* fibrillated bands always associated with granular corpuscles.
- *b. Granular corpuscles* as in the vomit, but larger and more numerous: associated with much granular matter.
- *c. Epithelium:* tesselated and globular, never cylindrical.
- *d. Debris of vegetable and animal food:* as in the vomit, but to a much less extent, and in less variety.
- *e. Oily and fatty matters:* fluid and concrete forms only.
- *f. Crystallizable matters: salts, etc.:* in addition to phosphates and chloride of sodium, as in the vomit,
  - *a.* Urates and
  - *b.* Siliceous matters.
- *g.-Fungi:* Mycelium and sporules of various kind of mould.
- *h. Animalcules:* Vibrios.
- *i. Compound granular bodies,* variously coloured.
- *k. Blood corpuscles.*
- *l. Hyaline globules:* non-oleaginous.
- *m. Molecular and granular debris,* variously coloured.

2. *Post-mortem* contents of intestines. In addition to several of the above histological elements,
- *a.* Epithelium: cylindrical, isolated or in patches, and other disintegrated elements of mucous membrane.
- *b.* Shreds or flocculi of fibrinous false membrane.

III.—*Urine.* 1. Passed during life.
- *a. Mucus:* more hyaline than in the vomit and stools, and in less quantity.
- *b. Granular corpuscles,* as in preceding evacuations.
- *c. Epithelium:* tesselated and globular: clavate, fusiform, or otherwise altered in shape—hazy or granular: in its origin renal, vesical, urethral, vaginal, etc.
- *d. Fibrinous casts* of renal tubuli: transparent, granular and oily.
- *e. Crystalline matters, salts, etc.:*
  - *a.* Uric acid: in lozenges, rhombs, bundles or stellar masses of acicular crystals, etc.
  - *b.* Urates: amorphous granular form and in globular masses, with a crystalline radiating texture.
  - *c.* Phosphates: prismatic, plumose, stellar, cruciform, etc.
  - *d.* Oxalate of lime: octahedral and dumb-bell.
  - *e.* Chloride of sodium, in sparing quantity.
- *f. Compound granular bodies:* the "exudation corpuscles" of some authors.
- *g. Pigmentary matters:* blue and green.
- *h. Pus corpuscles.*
- *i. Isolated vegetable cells* and other accidental impurities of vegetable origin.

II.—*Post-mortem* contents of bladder. In addition to several of above histological elements, various results of disintegration or mechanical maceration of the mucous membrane of the bladder.

Of the histological elements above noted, several usually occurred in any given specimen of the respective evacuations; seldom or never all of them at once. Some were of very common occurrence, as mucus, granular corpuscles and epithelium; others very rare, as blood corpuscles. A few must be regarded in the light of accidental admixtures or impurities, as urates and siliceous matter in the stools; others were probably the result of incipient decomposition of the fluid evacuated, as vibrios and fungoid mycelium. Let us consider these elements more in detail.

I. *Vomit.*—Vomiting occurred chiefly during the collapse stage, or when collapse was passing into reaction—prior to the development of the fever stage. The fluid ejected varied greatly in quantity and colour. It exhibited various shades and combinations of brown, yellow, green, pink, red, and grey—frequently even in the same case, at different periods of the same day. These colour-changes are probably to be referred to the action of modified bile or blood—more frequently, I think, to the former than the latter. The specific gravity was generally low, varying from 1005 to 1010: the reaction with test-paper was generally acid, though sometimes neutral, or even alkaline in one or two cases; and the application of reagents showed that the fluid was sometimes albuminous—more frequently not. The specific gravity, acidity or alkalinity, odour, amount of sediment, and other characters, necessarily depended, in a great measure, on the nature and amount of the fluid and solid ingesta, and varied accordingly. In the first vomits, were usually discharged quantities of partially digested or undigested food—in some cases, masses or quantities of potatoes, cabbage, onions, barley, oatmeal, beef, herrings, and other articles of diet commonly used among the lower orders of the community, constituting the bulk thereof. In such cases, the sediment greatly preponderated over the fluid element of the vomit; but, in subsequent vomits, the sediment gradually decreased in quantity, becoming more homogeneous, —frequently resembling bran and water intermixed—until it was present only as a flocculo-granular matter, or as mucous flocculi. In the latter case the fluid was whey-like, or of a very pale straw-yellow colour, the vomit closely resembling the ricy stools of the collapse stage: this, however, was very rare. The histological elements of such a ricy vomit were very similar to those of the ricy stools, with the exception, that in the vomit there was generally a considerable amount of pavement epithelium, and a larger quantity of food debris. The mucous flocculi consisted of hyaline bands or ribbons of mucus, colourless, and very delicately striated, bearing on their surface multitudes of small granular corpuscles, similar in general appearance to, but smaller than, pus corpuscles, and associated with a varying quantity of molecular and granular matter. Both in the vomit and stools—more frequently in the former than in the latter—the mucus occurred in delicate, almost transparent bands, devoid of the corpuscular or molecular element. This I have also observed in other diseases—as in the stools of chronic dysentery—illustrating the proposition, that the corpuscular element is not essential to the composition of mucus.

The granular corpuscles varied much in size. Their appearances under the action of water and acetic acid, separately or combined, also varied greatly. They sometimes remained unaffected, or the granularity was simply diminished, the size of the corpuscles being increased: a single or compound nucleus was sometimes developed, occupying a central or lateral position, the granularity of the cell-walls becoming diminished, or disappearing: or, lastly, a delicate transparent cell-wall became evident, more or less closely enclosing the corpuscles, which now assumed the characters of nuclei. Their histological characters varied to such a degree, as to render it impossible specifically to designate their true nature. In consideration of the reaction on them of acetic acid, they might be denominated mucoid or pyoid—these terms merely implying a general resemblance to mucus or pus corpuscles, without determining their nature or origin. A consideration of the circumstances under which they are developed, as well as of their microscopic characters, leads me to regard them as chiefly mucus corpuscles and epithelial nuclei. It must be remembered, however, that they are presented to us in a very young, or comparatively immature, condition: they are developed with great rapidity, and thrown off in infinite numbers, from the mucous surfaces of the intestinal canal, almost immediately after birth, or at least long prior to maturity. Hence they seldom present the characters of fully matured mucus corpuscles, or epithelial scales. They can be much better studied in the ricy stools than in the vomit of cholera, in consequence of the former frequently containing no other histological elements than mucus bands, and the granular corpuscles in question.

Epithelium was very common, and was most abundant in vomit containing little or no food debris, and having a scanty flocculent sediment. Of such a sediment it frequently constituted the bulk: and it also occurred, sometimes to a considerable extent, in the frothy mucus scum. It often appeared more abundant in the later than the earlier vomits, and its quantity seemed, to a certain extent, proportionate to the intensity of the retching, or the expulsive or spasmodic efforts of the stomach and œsophagus. The epithelium was almost always the pavement or tesselated form: it was frequently tinged greenish or brownish by biliary pigment, and it differed much in transparency, haziness, and granularity, being sometimes very dark and granular, or infiltrated to a considerable degree with oleo-albuminous globules. Its form also varied greatly, being sometimes very large, and irregularly hexagonal or polygonal, globular or ellipsoid; or smaller and variously elongated, fusiform or caudate. When small, shrunk, and elongated, it was frequently also hazy or granular. A great proportion of the epithelium was undoubtedly in a young or undeveloped condition. In only one case did I find cylindrical or conoid epithelium. Here the collapse was very severe and rapidly fatal, and the retching intense and protracted.

In the first vomits, I have already stated, that the nature of the food could be easily distinguished by the naked eye. When the sediment became more homogeneous, and simply granular or granulo-flocculent, the microscope enabled me to detect fragments or isolated cells of the epidermis and parenchyma, epidermic hairs, spiral and porous vessels, and fragments of spirals from the fibrous tissues, starch corpuscles, and chlorophylle grains—the result of the partial disintegration of various culinary vegetables, or articles of diet of vegetable origin. These vegetables, or articles of diet, were chiefly potatoes, bread, oatmeal, and barley, cabbage, onions, carrots, turnips, or other ingredients of Scotch broth, besides sugar cane, and other less familiar substances. Associated with vegetable debris were usually fragments of muscular fibre from beef, mutton, or other forms of animal food; fish scales were found very rarely. Of all the vegetable tissues or cells above referred to, the most constant were the parenchymatous cells of the potato, and starch corpuscles, chiefly from the potato, oats, and barley. The former were large, irregularly globular, oval or oblong cells, usually full of delicate, but comparatively distinct, starch corpuscles: when empty, they appeared as delicate, shrivelled vesicles or sacs, having a slight brownish or greenish tinge. The starch corpuscles varied much in size: on the larger ones the striæ were usually distinct. When ruptured, or emptied of their contents, they frequently resembled entire or broken rings, the inner border having generally a lacerated edge. The peculiar reaction of iodine was observable in some, and not in others.

The isolated or disintegrated individual cells of the tissues above mentioned, probably include many, if not most, of the "annular bodies," "cholera corpuscles or fungi," which so startled the histological and medical world during the cholera epidemic of 1848–9. At least, the ultimate elements of these tissues or substances, as observed by myself, correspond, in their characters, to those published, as delineative of the bodies in question, by their original discoverers. I believe that potatoes, oatmeal, bread, and the vegetables of common broth, will furnish most of the forms of the once famed annular bodies; that they are not, therefore, fungoid in their nature or origin; and that they have no essential or causative relation to cholera. I have found them equally in other diseases—as in the stools of diarrhœa and dysentery. It is unnecessary to specify, in detail, the forms of these cellular bodies, observed by myself.[1] Many of them are simple globular cells, containing chlorophylle granules, aggregated regularly or irregularly round a central nucleus. This is the character of the gonidia of lichens—the green coloured cells lying immediately below the cortical layer of the thallus: hence, in former publications, in order to economise space and words, and to indicate their general appearance, I denominated these bodies *gonidic*. When emptied of their contents, they are delicate hyaline vesicles, and appear often as mere circles or rings, enclosing a free central area. Sometimes there is an inner dotted ring, probably produced by a puckering of the cell wall. This cell wall sometimes disappears, and the chlorophylle grains may then be found aggregated circularly round their nucleus, in regular masses, or free and intermixed with granular debris. Others of these bodies are of larger size, but very irregular shape: their walls are thick, and variously coloured, especially brown. Starch globules, partially broken up, are probably a common form of annular bodies: in this condition they frequently resemble the shrivelled sporangia of ferns. The non-action of iodine is not, I think, a sufficient disproof of such bodies being of an amyloid nature; for I have already mentioned that its usual reaction is sometimes absent, where the corpuscles otherwise bear indubitable marks of being starch. I have never seen annular bodies produced from spiral or annular vessels of plants, as was suggested in the report of the College of Physicians, London, in reference to the bodies described and figured by Brittan and Swayne of Bristol, though such vessels themselves are far from uncommon. Nor have I been able to trace any of them to medicines, for they occurred equally in cases where no medicines were given, or prior to their administration. Moreover, they were comparatively seldom found in the collapse stools, occurring chiefly in those of the reaction and fever stages; and their presence was coincident with the appearance of less equivocal forms of food debris. It will be evident, then, that I can see no satisfactory groundwork for the fungus theory of cholera, which I am not a little surprised to find still possesses powerful advocates.[1] We shall, hereafter, see that there is equally little foundation in fact for the animalcular and other theories of the cause or nature of cholera. We must evidently look elsewhere for a solution of the difficulty,—for as yet we are only on the threshold of the inquiry.

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[1] Drawings and descriptions will be found in the *Association Med. Journal*, April 14, 1854.

On standing for a short time, a greasy scum usually formed, especially in the earlier vomits; this consisted of oil globules, associated with prismatic phosphates. Occasionally it contained small pellets or masses of concrete fat, resembling pieces of tallow or suet: under the microscope, these sometimes consisted of irregularly oval vesicles, marked by a central stellate radiating mass of delicate acicular or filiform crystals, at other times only oil globules and amorphous granular matter could be observed. The vesicles were also found separately, especially in the earlier vomits, containing a considerable quantity of food debris. The crystals were probably margaric acid, the result of the decomposition of fatty ingredients of the food.[2] Fatty matter also occurred in the earlier vomits containing a considerable amount of undigested food, in the form of irregularly globular, oval or oblong, dark or light, sometimes hazy or granular bodies, surrounded by or bristled over with divergent, acicular spiculæ or crystals, sometimes so delicate that they were scarcely visible. In some forms the spiculæ seemed few, short, and thick, and when broken or rubbed from the surface of the nucleus, which was generally light coloured, their roots, or points of origin, gave the latter the appearance of being covered over with wart-like dark points. In other cases, the spiculæ were very numerous, barely visible as fine streaks, and appeared collapsed round or closely embracing the nucleus. The nuclei and crystals were sometimes separate, the latter occurring in irregular raphidian bundles, or in small confused groups. In the scum of the earlier vomits, concentrated by evaporation, the same crystalline matters occurred in the form of stellate radiating masses of thicker crystals, somewhat twisted or tortuous. The application of heat or ether caused the instantaneous disappearance of the crystals, and the agglomeration or fusion of the nuclei into oily masses. The nuclei often appeared compound, or as if made up of an aggregation of fatty globular masses. These curious spiculated bodies, which bear no inconsiderable resemblance to some microscopical insects, I have elsewhere described and figured as "echinus-like," or echiniform fatty bodies.[1] In cholera vomitings, they were frequently associated with sarcina. I have found them more abundantly in accidental vomitings in other diseases; indeed, so common did they appear to be, that I am led to regard them as the results of the natural or healthy digestion of fatty matters in the stomach or intestines. The same or similar bodies have been described by other observers, who apparently regard the crystalline element as stearine—the result of the decomposition of the ordinary fatty matter of the food, by bile and the pancreatic juice, separately or combined.[2]

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[1] *Vide* Professor Daubeny of Oxford, "On the influence of the lower vegetable organisms in the production of epidemic diseases."—*Edin. New Philosoph. Journal*, July 1855.

[2] Similar vesicles and crystals are figured in Hassall's "Microscopic anatomy of the human body," plate 19, fig. 5, which is labelled "Human fat vesicles, on the surface of which crystals, supposed to be those of margaric acid, radiating from a centre, have appeared: their presence is to be regarded as an indication that decomposition has begun to affect the contents of the cells."

On evaporating down the earlier vomits especially, two crystalline matters were generally found in varying proportions, viz., chloride of sodium and triple phosphates,—the former as irregular or broken cubes or tables, the latter usually as prisms of large size. Common salt was often present in considerable quantity; its source was obviously the ingesta swallowed shortly prior to the cholera seizure. On the other hand, the phosphates, though almost always present, were sometimes so in very small quantity. The same salts occurred, under similar circumstances, in the stools; but their relative proportion was reversed,—the phosphates being generally present in comparatively large quantity, the chlorides only to a small extent. Phosphates were frequently found in the scum or sediment on standing for a short time; but their numbers were greatly increased by evaporating down the fluid portion of the vomits. This process was usually necessary for the detection of the chlorides under the microscope.

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[1] "On the presence of certain crystalline fatty bodies in the vomit of cholera." —*Medical Times and Gazette*, July 1, 1854. And "Crystalline fats and sarcinæ ventriculi in vomited matters," with plates.—*Ibid.*, Aug. 5, 1854.

[2] Dr Leared of London appears to have produced similar bodies by the action of the pancreatic juice on fat out of the body, *vide* "On the pancreatic juice in relation to the digestion of fat."—*Med. Times and Gazette*, June 3, 1854; and report of the Physiological Society of London.—*Lancet*, May 20, 1854. Robin and Verdeuil also figure and describe similar crystals in their celebrated "Chimie anatomique."

In several cases, the vomit had a frothy, yeast-like, copious scum, of a pinkish or brownish red colour, precisely similar to the ejecta in the majority of cases of chronic vomiting, marked by the presence of sarcina. In all these cases, this entophyte was present in considerable numbers, sometimes entire, more frequently partially broken up or disintegrated, often very dark or granular. It was usually associated with epithelium, food debris, and fatty matter. But it also occurred in one or two cases where there was no such scum: in one case the vomit resembled coffee grounds in colour and consistence; in another, it was of a lead grey colour, and the sarcina was associated with undigested food, cylindrical and pavement epithelium, mucus and granular corpuscles. I have found it in five out of ten cases of cholera, where vomiting was a marked symptom; but in none of these cases could I ascertain that there had ever existed gastric symptoms of any kind; and in the fatal cases, where a necropsy was obtained, there was no dilatation of the stomach, or pyloric obstruction, as are stated by some authors almost invariably to exist in cases of sarcenaic vomiting.[1] I did not find it elsewhere than in the vomit. There are two reasons probably for its not being generally found in the stomach and intestines after death, firstly, because it is less seldom looked for in these localities; and, secondly, because it very speedily suffers disintegration. I have found it also in accidental vomitings in other diseases, and in cases where no prior gastric symptoms had existed, or did at the time exist; and I am inclined, therefore, to look upon it as an entophyte of common occurrence, in states of health deviating but slightly from the normal standard. I believe that it has been hitherto considered too much as a cause, and too little as an accidental result or concomitant of gastric disease; that it cannot be regarded in any other light than as indicative of a vitiated state of the system generally, or of the gastric mucous membrane especially, in virtue whereof the latter becomes the nidus of fungoid growths; and that its presence does not demand the exhibition of special remedies which ought rather to be directed to the amendment of the constitution. The mycelium and sporules of various species of fungi, constituting various forms of vegetable mould, were found in the scum of the vomit, as well as of the stools; but only at some stage of decomposition. They are found, however, under similar circumstances, in the vomit and stools of other diseases, and, indeed, in all decomposing animal fluids, and they are, therefore, far from peculiar to cholera.

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[1] *Vide* "Clinical Lecture on disease of the Stomach and vomiting of Sarcinæ," by Dr Todd of King's College Hospital, London.—*Medical Times and Gazette*, July 1, 1854.

The same remark may be made with regard to the presence of *vibrios*, which I have seen in thousands—in a state of very active movement—in vomit, very soon after it was ejected. But the fluid was in a state of incipient decomposition; these animalcules occur abundantly in all animal fluids, under similar circumstances, and their presence in the vomit and stools of cholera, therefore, can have no causal relation to the disease. They were more commonly met with in the stools than in the vomit, for the simple reason, I presume, that the former undergo decomposition more rapidly and readily. In the scum of one vomit, consisting in great measure of partially digested food, I found several acari and their fragments; their presence was evidently quite accidental.

In one case, pus was found in the vomit; but its origin was muco-purulent sputa from a bronchitic lung.

The contents of the stomach, as examined after death, were generally of a greenish, brownish, or chocolate colour, and viscid from copious admixture with mucus. However much mucus they contained, they never had a ricy appearance. In mucus scraped from the interior of the stomach, were found small quantities of the ultimate elements of various vegetable tissues,—in other words, forms of the "annular bodies," already referred to, along with epithelium, conoid, or elongated so as to possess a fusiform or fibroid appearance, generally very dark and granular; fragments of the gastric glands; mucus bands; granular corpuscles; compound granular bodies; and molecular debris coloured by the bile pigment.

II. *The Stools.*—During collapse, these were generally whey-like in colour and consistence, with a sediment of curdy mucous flocculi; sometimes they resembled "potato water," "or sage water," according to the description of the patients themselves. The sp. gr. was usually below 1010: they were alkaline, albuminous, and devoid of odour. As reaction and fever became successively developed, the stools gradually assumed a yellowish colour, and thicker consistence, becoming like thin pea soup. The specific gravity rose from 1010 to 1015, fœtor was acquired, and a granular sediment occupied about one-third to one-half the bulk of the fluid evacuated. Albuminosity and mucus gradually disappeared,—fœtor, colour, and food debris, being substituted. In advanced fever, the stools became darker and more fœtid, frequently loam coloured, sometimes tarry in colour and consistence. The latter appearance has usually been attributed to an excess of vitiated bile; altered blood pigment, or the secretions of the intestinal canal, may also have a share in its production. In the progress of convalescence, a few scybalæ sometimes appeared, and the fæces gradually acquired their normal consistence and colour.

The mucous flocculi of the ricy or collapse stools consisted almost entirely of delicately striated, hyaline bands of mucus, associated with granular corpuscles, as in similar circumstances in the vomit.

The fibrillated and corpuscular elements varied in their relative proportions, but they were always conjoined. Epithelium I very rarely found, unless in the form of epithelial nuclei, the granular corpuscles already described, when speaking of the vomit. In one or two cases, large, irregularly round, or angular scales of pavement epithelium occurred; but the patients were females, and their origin was probably leucorrhœal matter, for they were associated with pus.

Cylindrical epithelium I never observed. This is totally at variance with the statements or observations of Continental pathologists and histologists from Boehm to Professor Buhl of Munich, the latter of whom would appear to have found, in the cholera stools, sometimes "the entire uninjured covering of the intestinal villi."[1] This form of epithelium, however, I found abundant in the *post-mortem* contents of the intestines—especially those of the small intestines. Upon its presence or absence in the stools, hinges another of the fallacious and unstable, but specious and attractive, *theories* of cholera, viz., that its essential nature, or, at least, that an essential lesion is a denudation of the intestinal villi, or desquamation of the intestinal epithelium. Did we speculate on the characters of the contents of the intestines after death, without having regard to the histological elements of the stools passed during life, we should, undoubtedly, be led into the error of supposing that such denudation and desquamation really might or did exist during life; but I think that a dispassionate consideration of the facts of the case must lead to the conclusion, that these phenomena have no claim to be regarded as vital, but are merely the results of *post-mortem* or mechanical maceration. The same desquamation, and even further disintegration of the elements of the mucous membranes, occurs equally, after death, in the stomach and urinary and gall bladders.

Food debris was almost never met with in the collapse or ricy stools; but in those of the reaction and fever stages it was comparatively common, usually stained by altered or normal biliary pigment. I found, in all the cholera stools, including the ricy or whey-like evacuations of collapse, what I considered to be biliary reactions, which led me to regard the prevalent opinion that the bile is wholly deficient in such ricy stools, and that the function of the liver is, therefore, totally suspended during the collapse stage, as very fallacious and erroneous.[2] The histological elements of the food debris present in the stools, were the same in kind as those occurring in the vomit, differing, however, in degree. In the stools, fragments of epidermic and parenchymatous tissues were much less, while isolated and broken up ultimate cells and contents of these tissues were much more, frequent. The reason of this was obvious; in the stools, the food had undergone a much greater disintegration. Hence the forms of altered or partially broken up vegetable cells, which have been by some authors denominated annular bodies, were often more readily discoverable in the stools than in the vomit.

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[1] *Vide* Review in *Edin. Medical Journal*, Oct. 1855, of paper in *Henle's Zeitschrift für Rationelle Medicin, Band VI. Heft I.*

[2] "Clinical notes on cholera,"—"Presence of bile in the cholera evacuations." *Association Med. Journal*, March 10, 1854.

As in the vomit, also, a greasy scum usually formed on the surface of all the stools, on standing, consisting generally, when microscopically examined, of oil globules, prismatic phosphates, and molecular matter. In the fever stools—never in those of the collapse stage—fatty and oily matter occurred in two forms, viz., in pellets or masses of concrete fat, and as a scum of liquid oil. The former condition existed in several cases where the stools were dark and fœtid, resembling in appearance and consistence gruel or porridge. The masses varied from the size of a pea to that of an almond or bean, and floated on the surface of the stools. In some cases they had a very bright, greenish-yellow tinge, from the presence of biliary pigment, which, however, was easily removed by repeated washing in water; they were usually almond shaped masses, somewhat soft and blubber like. Under the microscope, they were resolved wholly into oil globules. Others were of much firmer consistence, and whiter colour; they were irregular in shape, resembled pieces of common suet, and consisted of an aggregation of globular or oval vesicles, each marked by the central radiating masses of filiform crystals, mentioned when speaking of similar fatty masses in the vomit. The interspaces between the individual vesicles seemed made up chiefly of oil globules.[1] In two cases, a scum of fluid oil—of a bright, greenish-yellow colour—occurred; in both cases the stools being those of convalescents from a protracted fever stage. Where fatty or oily matters did occur in the stools, they appeared to bear no relation to the intensity or type of the disease, or to the characters of the matters evacuated. Some authors are inclined to connect all cases of the appearance of fat or oil in the fæces with the supposed necessary existence of organic disease of the pancreas; but I can neither see the necessity of, nor ground for, such an assumption.

The same salts, also, existed as in the vomit, though, as I have already mentioned, in different degree. Phosphates were almost invariably present, both in scum and sediment, immediately after being voided, increasing in quantity when the stools were allowed to stand, or were concentrated by evaporation. According to the freshness of the evacuations, the period of the disease at which they were voided, the degree of concentration, the rapidity of evaporation, natural or artificial, the nature of reagents added, and similar circumstances, their crystalline form varied considerably. Their most usual and natural form was the prism—perfect or broken, varying greatly in size; but they occurred in an infinity of plumose, stellar, and cruciform conditions. Similar changes in the conditions of examination produced similar modifications in the crystallization of the salts of the urine and vomit. I have found phosphates of similar forms in all fæces I have examined, both healthy and diseased, in similar states of incipient decomposition. Chloride of sodium was only detected on evaporating down the filtered liquid portion of the stools; and, though generally present, it varied greatly in amount in different cases, and in stools at different periods of the disease, in the same case. Its crystalline form appeared to vary in the same way as that of the phosphates, though to a much less degree. In one or two cases—in stools evaporated to dryness—I found large dark brown globular urates of ammonia, similar to those which frequently occurred in like circumstances in the urine; but the patients were females, and I attributed their presence to the accidental intermixture of a small quantity of urine. Siliceous crystalline matter I also found sparingly; but it was evidently present, as an impurity or accidental admixture, its source being probably dust from the floor of the wards.

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[1] "Cases of cholera, illustrative of the presence of fat in the fæces, and of certain alterations of the blood."—*Edin. Monthly Med. Journal*, Aug. 1854.

Blood corpuscles were distinguished only in one case—in a stool passed at, or immediately prior to, death:—it contained a quantity of viscid mucus, deeply stained and streaked with blood, and resembled some of the bloody stools of advanced dysentery. Hyaline bodies, which resisted the action of heat, ether, and other reagents, were also present, in sparing quantity; they were usually considerably larger than pus corpuscles. Fungoid mycelium and vibrios occurred, under the same circumstances as in the vomit.

The *post-mortem* contents of the intestines were sometimes of nearly as low specific gravity as the stools, but they were generally much more viscid from admixture with mucus; had a deep colour, due to altered biliary matter; were alkaline and fœtid, and generally contained some proportion of fluid fæculent matter. They were never ricy, or closely resembling the characters of the whey-like collapse stools; and they were seldom simply mucoid. In one case only, the intestines were lined by pure mucus, no foreign intermixture of any kind being detectable. This mucus, when scraped or washed from the surface of the mucous membrane, agitated with water, and allowed to stand, gave to the fluid quite the appearance of the ricy stools. The mucous flocculi, on being examined by the microscope, differed in this, however, that they contained quantities of cylindrical epithelium, isolated, or in patches of varying size—the apices of the cells being united by a delicate hyaline continuous membrane;—and very rarely a few blood corpuscles. Mucus, scraped from different parts of the canal, always contained cylindrical epithelium, often in process of disintegration; frequently portions of villi, which were always nude; and occasionally shreds of mucous membrane and blood discs. The latter, when present, were most abundant towards the termination of the large intestine, which was generally the chief seat of hyperæmia or ecchymosis, sometimes of a hæmorrhagic oozing. Cylindrical epithelium occurred in much

Illustrative of the Histology of the

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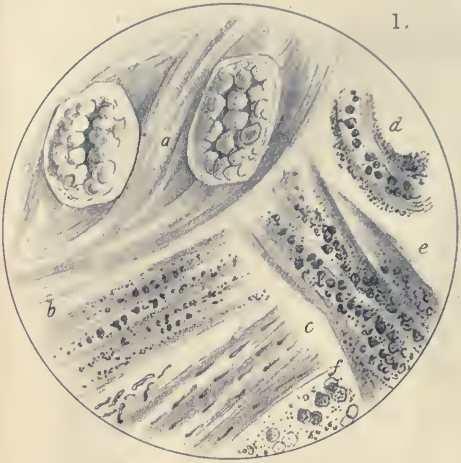

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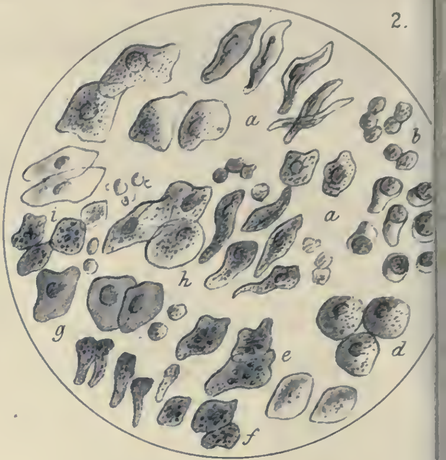

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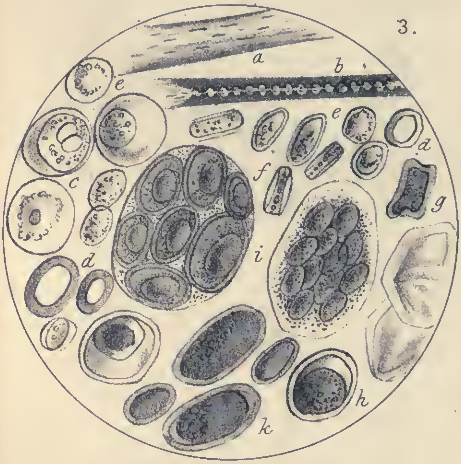

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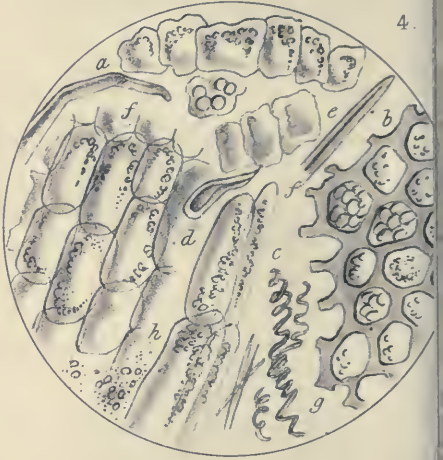

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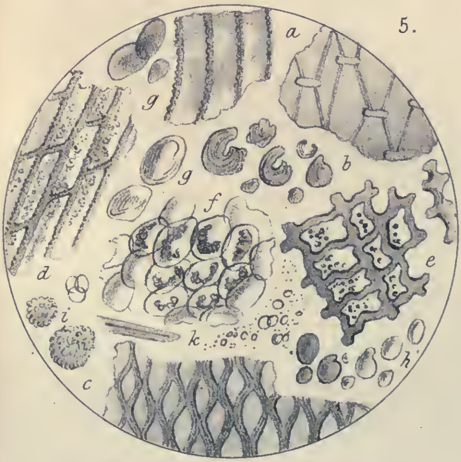

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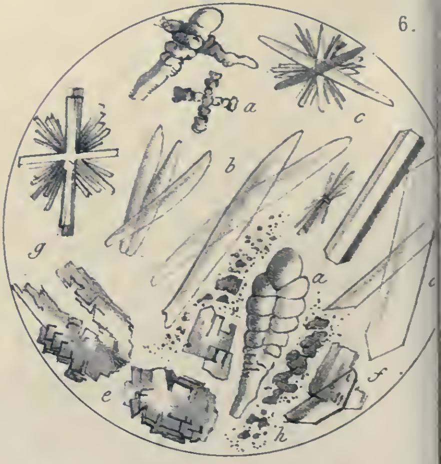

W. L. Lindsay, M.D. delt

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greater quantity in the small than in the large intestines, whose contents also were generally darker and more fœtid. In some cases, flocculi of false membrane, or effused lymph, were found; in others, there appeared to have been an exuviation of the mucous membrane itself.[1] The above histological elements constituted the chief points of difference, microscopically, between the contents of the intestines after death and the evacuations passed during life. The important bearing of this difference on theories founded on the pathology of cholera, I have already pointed out.

Description of Plate illustrative of the Histology of the Cholera Evacuations in the Dog.

Fig. 1. *a.* Mucus, in delicately striated bands, unassociated with granular corpuscles, entangling the parenchymatous cells of the potato, which are full of starch corpuscles. In the cholera stools of man the corpuscular element of mucus is generally present: in the vomit it is sometimes absent.

b. c. Flocculi of mucus, removed from the duodenum after death, boiled in weak acetic acid.

d. Flocculi of mucus from the contents of the large intestines, removed after death, boiled in water. The granular corpuscles and molecular matter were tinged of a greenish-yellow colour from biliary pigment.

e. Ordinary appearance of the mucus flocculi contained in the stools or in the intestines, showing the striated bands of mucus covered by or entangling granular corpuscles and molecular matter. This is also the most usual character of the ricy flocculi in the collapse discharges in man.

f. The corpuscular element separated.

Fig. 2. *a.* Various forms of pavement epithelium from the vomit, all having a light greenish-yellow tinge from biliary colouring matter. The epithelial sediment of the cholera vomit in man generally consists of precisely similar elements, the scales being comparatively seldom perfect in size, form, or transparency, but frequently becoming elongated, navicular, fusiform, fibriform, and dark, hazy, or granular.

b. Granular corpuscles associated with the above and similarly tinged.

c. Action of acetic acid on them, showing the development of a delicate cell wall.

d. In mucus scraped from the gall bladder.

e. Hepatic epithelium, varying in darkness and granularity.

f. Cylindrical and pavement epithelium in mucus scraped from the stomach, very dark and granular.

g. Epithelium and granular corpuscles in mucus scraped from the inner surface of the urinary bladder.

h. Various forms of pavement epithelium in mucus scraped from the lining membrane of the urinary bladder in another dog. It is altered in a similar way to that contained in the vomit. Precisely the same appearances occur in the epithelial sediment of the first urines passed in the cholera of man.

The frequent haziness or granularity of the epithelium in different parts of the body, and its infiltration with oily globules or granules, are equally common in the cholera of man.

i. In the mucous juice scraped from a section of the lungs.

Fig. 3. *a. b.* Animal hairs, probably accidentally swallowed by the animals, and occurring in the intestinal evacuations.

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[1] *Vide* "Histology and Pathology of Cholera"—"Clinical Notes on Cholera." —*Association Med. Jour.*, April 14 and 21; May 12; and June 16, 1854.

c. d. e. f. g. Various forms of isolated or partially disintegrated cells of vegetable tissues consumed as food by human cholera patients, and contained in their vomit and stools, especially the former. On these evacuations the dogs were fed. A diarrhœa was induced, during which the vegetable elements of their food frequently passed through the system of the animals almost unchanged. They include various forms of the so-called "annular bodies," "cholera fungi," or "corpuscles" of some authors, as is shown at *d*. *c*. Exhibits the forms which I have elsewhere denominated "gonidic." *f*. Were scraped from the surface of the duodenum, to which they were adherent. Some of these cells were generally to be found adherent to or entangled in the mucus coating of every part of the intestinal tract. The same bodies occur, but in greater abundance and variety, in the stools and intestinal coating in the human subject, not only in cholera, but in other diseases. Their contents possess various tints of yellow or green.

h. Collapsed and empty parenchymatous cells of the potato, of a light brownish colour. They become blue under the action of iodine.

i. k. Entozoon ova in various stages of development, aggregated or free; their colour consists of various shades of brown or brownish-green. In connection with their frequent occurrence in the intestinal evacuations, it may be mentioned that a tænia was found in the discharges of one dog and a lumbricus in the intestines of another.

Fig 4. *a. b. c. d. e.* Fragments of the parenchyma of various vegetables consumed as food, chiefly in the form of broth, and contained in the first vomits of human cholera patients. On these evacuations the animals had been fed, and the contained vegetable tissues had passed almost unaltered through their intestinal system. Most of the cells will be seen to be full of chlorophylle grains or starch corpuscles; at *e* they are empty.

f. Fragments of epidermic hairs of various vegetables generally used as food by man. Such hairs occur in ordinary wheaten bread.

g. Uncoiled spirals from the fibrous tissue of vegetables, also used as food by man, such as the turnip and carrot.

h. Isolated chlorophylle grains which have escaped by the rupture or disintegration of the parenchymatous cells above figured and described.

Fig. 5. *a. b. c. d.* Fragments of the epidermis of various vegetables generally used as food by man, chiefly the ingredients of broth; they possess various shades of green. Fragments like *a* occur in coarse bread.

e. f, Fragments of the parenchyma of similar vegetables, similarly coloured.

g. Starch corpuscles, entire, variously ruptured or otherwise altered, from the contents of the large intestines. They strike no blue colour on the addition of iodine, even with the aid of mineral acids. Hence the non-action of iodine cannot be considered a sufficient proof of the non-amylaceous nature of such corpuscles or cells. In other cases, the same corpuscles, and apparently under the same circumstances, exhibit the usual reaction of starch with iodine. I have noticed the same phenomenon in the cholera of man. When partially broken up, starch corpuscles probably include some of the forms of "annular bodies" already alluded to.

h. Starch corpuscles adherent to the mucous membrane of the intestines or intermixed with the mucus thereof.

i. Compound granular bodies of a deep greenish-yellow colour.

k. Isolated chlorophylle grains and molecular debris of a similar tinge.

The histological elements exhibited in Figures 3, 4, and 5, occurred in the intestinal discharges and *post-mortem* contents in the cholera of the dog. The vegetable tissues, and their disintegrated cells, are the same as those occurring in the cholera stools of man. The animal hairs and entozoic ova are alone peculiar to the dog.

Fig. 6. *a. b. c. d.* Crystals contained in various specimens of the urine, when concentrated by evaporation.

e. In the semi-fæculent contents of the large intestines.

f. Ordinary prismatic phosphates appearing in the scum of the intestinal evacuations on standing for a short time. Along with and in similar circumstances to the phosphates, chloride of sodium occurred sparingly in broken tables.

g. Stellate groups of acicular phosphates occurring in similar circumstances.

h. Siliceous crystalline and granular matter, probably licked by the dogs from the floor of the room in which they were confined.

The crystallizable constituents of the urine were fewer in number, and presented less variety in crystalline form than those of the cholera urine in man.

(*To be continued.*)

Part Second.

REVIEWS.

Nature in Disease, illustrated in various Discourses and Essays. To which are added Miscellaneous Writings, chiefly on Medical Subjects. By Jacob Bigelow, M.D., Physician and Lecturer on Clinical Medicine in the Massachusetts General Hospital; Professor of Materia Medica in Harvard University. Boston, 1854. Pp. 391.

A considerable portion of Dr Bigelow's treatise consists of essays on the self-limiting power of diseases, and on their treatment, founded on the idea that the curative measures in favour with the profession are, or were, much too active and heroic; and that in the majority of the cases referred to, disease had much better be left alone than be subjected to such rude handling as that of the ordinary practice. In some parts of Europe which we could name, the republication of these essays at present would be a decided anachronism. In Vienna, for example—if it be true that drugs have any efficacy at all—we think that the faith of our professional brethren requires in these days rather to be confirmed and sustained than to be confronted with appeals of this nature. The self-limiting power of diseases can scarcely fail to be understood where *extractum graminis* rules the practice of one hospital, and infinitesimals that of another. Nor is there wanting in most of the other capitals of Europe a sufficiently wide field for the observation of that aspect of the physician's office which a coarse and intemperate, but astute English writer was the first to call "The Art of Curing Diseases by Expectation."[1] In Scotland, at least, we can vouch for it, that the simplification of our therapeutical processes has, to a great extent, diminished the disposition to meddlesome intererfence which was the necessary result of the "apothecary" system, and has restored to "nature in disease" her ancient Hippocratic pre-eminence.[1]

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[1] See Gideon Harvey's treatise under that name. London, 1689. It was answered by Stahl in a Latin diatribe, entitled "*Ars sanandi cum Expectatione, opposita arti curandi nuda Expectatione.*"

Dr Bigelow appears not only willing to admit that a similar change has been going on in America in the medical mind; but he challenges attention to his thoughts as the expression of views entertained and, in substance, delivered to the public twenty years ago, and with which that public has now come substantially to agree :—

> "It is observable to many physicians, that a change in the mode of regarding the treatment of disease has come over the medical world in this city, and in various parts of the United States, during the last quarter of a century. In certain cases a practice of watching, guiding, and trusting the salutary indications of nature has taken the place of more active interferences of art. Those men whose medical career began at a period antecedent to that which has been named, will recollect that the course then most prevalent among the profession, consisted in energetic and sometimes annoying and painful applications of supposed remedies, from the beginning to the end of diseases, whether those diseases were amenable to such treatment, or totally incapable of being influenced by them. And, in some instances, such active measures were promoted by influential teachers of medical science, in the great schools of our country."

There can be no doubt, we think, that since the days of Rush in America, of Gregory and Armstrong in this country, of De Haen and Stoll in Germany, of Broussais in France, and of the successive reigns of Brown, Rasori, and Brossais, over the medical opinion of Italy, much more general regard has been paid to the natural and spontaneous course of all diseases; and from the discovery that very many of those which are curable do not absolutely require what is commonly called "active treatment," there has resulted a diminished confidence in specifics, and an increased reliance on palliative and hygienic means. But although this tendency has become exaggerated in many minds into a sort of therapeutical pyrrhonism, of which the homœopathic quackery of infinitesimals may be said to be a disguised expression (as hypocrisy is said to be the homage which vice pays to virtue), we are very much mistaken if the real power of medicine over disease be not more fully, freely, and generally recognized at the present hour than it has ever been. At all events it is certain, we think, that the medical art, as a general rule, possesses and deserves more of the confidence of the world than it did at the time when Boileau depicted its results and resources in the celebrated line —

"L'un meurt vuide de sang, l'autre plein de séné."

We could have wished that Dr Bigelow's essay on self-limited diseases, and indeed the present volume generally, had been less occupied with what, we are satisfied, is only one side of his mind. The truths which he communicates are both valuable and important; but we miss in many parts of the volume the constructive element which we should expect from a physician of so much experience. In

[1] "Νούσων Φύσιες ιητρόι."

his anxiety to root up the errors which adhere to medical practice, he has to some extent presented it in a light which may prove a discouragement to the unwary reader, and may point the sarcasms of those who, in the words of an old writer, "make an art of calumniating the arts." How far Dr Bigelow is himself removed from conclusions really disparaging to his vocation, may be learned from the following admirable passages in the essay on the Treatment of Disease :—

> "Every citizen whose capacity is able to reach the ordinary affairs of life, is aware that the persons most capable of discharging the common offices, or of exercising the common arts and duties of life, are the individuals who have by talents, education, and practice, become EXPERTS in those arts and duties ; and that, on the other hand, those persons who profess to have acquired knowledge by intuition, to have become learned without labour, and to have arrived by short cuts at results and qualifications which demand years of preparatory training, must be incompetent and treacherous sources of reliance. And it is the general admission of this truth which gives support and confidence to the various professions, arts, and callings to which men devote their lives. P. 69.
>
> "What is so conspicuously true in the common business of life, is only an example of what is more vitally true in the practice of medicine. If a man has had the misfortune to get a shot or a stab in his body, he does not need a doctor who administers a specific dose, or a sovereign plaster, for holes in the body ; he wants a man who can tell him whether the wound has passed inside or outside of his peritoneum, and whether it is requisite for him to make his will, or to make arrangements for pursuing his journey.
>
> "But the prescribing for symptoms in the dark is not the only instance in which false logic has entered into medical reasoning. It is not less absurd to suppose that disconnected events, which have closely followed each other, have therefore a necessary dependence upon each other. Shrewd practical men do not thus govern themselves in the common affairs of life. A merchant about to send a ship to sea, endeavours to find a captain to take charge of her who understands navigation, who can keep his run, and determine his place, who studies the weather, and is on the outlook for a lee shore, and who, in emergencies, can judge whether it is necessary or not to cut away the masts or throw over the cargo. But suppose a man appears, and such have been, who announces that he has a specific bottle of oil with which he cures tempests, and by pouring a teaspoonful of which upon the waves, the storm is speedily made to cease! Would any prudent owner intrust his vessel to such a man, and on such grounds, even though he should produce a hundred certificates that storms had stopped in half a day, or half an hour after the application of his remedy? For these certificates, if true, would only prove that in a certain number of cases, a result had followed by accident, which common sense, and if necessary, a thousand opposite cases would show had nothing to do with the pretended cause.
>
> "What would be true of the apparent or alleged cure of a tempest at sea, is no less true of the pseudo-cures which every day take place in diseases which are self-limited, paroxysmal, or recidivous in their character. There are doubtless living many men who believe themselves to have been cured half a dozen times of various diseases, of fevers and inflammations, of neuralgia, rheumatism, gout, and asthma, and each time perhaps by a different remedy ; but who on the next imprudence or returning period, are destined to find themselves feverish, neuralgic, gouty, or asthmatic still.
>
> "Deceptions in medicine are occasioned not only by the dishonesty of charlatans, but quite as often by the well-meaning credulity of other practitioners, whose intellect is impulsive, or whose education has been unduly curtailed. It is so flattering to a man's self-love to believe that his chance shots have some-

times taken effect, that physicians of regular position may pass their lives in mere speculative and random efforts at curing diseases, shutting their eyes against their own failures, and not allowing themselves to consider, that in a certain portion of successful cases which they had failed to understand, the disease in truth got well without, or perhaps in spite of, their misdirected and embarassing practice.

"Medicine is a great good and an unquestionable blessing to mankind, when it is administered by discriminating and intelligent hands with sincerity and good judgment. It disappoints expectation, and fails to accomplish its mission, when the agent who dispenses it falls into the mistaken resource of professing infallibility, and of raising hopes which he knows not how to accomplish. No man is deemed to be safe in his worldly affairs who is afraid to look into his own pecuniary condition. Neither is a physician safe in his practice or his reputation who is afraid to face the case of his patient in all its bearings. That man is most to be relied on who looks calmly and understandingly at the emergency before him, who knows the import of signs, and deduces from them the probable tenor of coming events; who is aware of the great truth that all men must die, but is also aware of the more gratifying truth that most sick men recover; and who, in particular exigencies, inquires of his reason and his knowledge, in which of these two immediate categories his patient is placed, and how far the event of the case is within his control. He will then interfere or he will wait, he will act or he will forbear, as he only knows how who can form a correct verdict from the evidence before him, and who knows the immeasurable good or harm which hangs on medical practice." Pp. 71-75.

There is much of the same tone in the essays on Homœopathy, and on the Medical Profession, which follow; they are throughout clear, eminently readable, and full of that happy power of illustration which is characteristic of an accomplished and refined mind. Of the miscellaneous essays, the two which strike us as most important, because the most positive, considered as medical investigations, are those on Pneumothorax, and on the Treatment of Injuries by Fire. In the former, the author endeavours (we think successfully) to establish by experiment, that metallic tinkling is due to "forcible or sudden disturbance of the liquid in a vibrating cavity," of which the greater part of the contents are gaseous, and of which the walls are in a state of considerable tension. The sonorous vibrations he considers to be, in this case, communicated from the fluid directly to the thoracic parietes, the air having no part in their transmission. The amphoric sounds, on the contrary, are generated in the air and transmitted by it alone.

In regard to the treatment of injuries by fire, Dr Bigelow arrives at results decidedly favourable to the cooling treatment of Sir James Earle and Dr Kinglake, as opposed to the stimulating plan proposed by Mr Kentish, the basis of which was turpentine and hot dressings. He considers, however, that "the two extremes are alike injudicious, when pursued in their full extent," and recommends as a general rule "an intermediate plan," consisting we presume of something closely resembling our usual and simple water-dressing. The experiments are ingeniously devised, and are founded on the artificial production of precisely similar injuries in the opposite ears of rabbits, which are there treated after the same fashion.

General Practitioners' Visiting List. London.

Medical Memorandum-Book and Indelible Diary Edited by a Physician. London.

THE profession is much indebted to the enterprising publishers of the above mentioned visiting books. They are admirably edited, and present, in a small space, not only great facilities for recording visits and engagements, but also a large amount of useful information. The new aspirant to public favour, De La Rue's List, is, perhaps, more tastefully got up than what is required for the rough usages of a country practice, but with its indelible paper, and its useful addenda, it is well suited for the town physician. We would recommend Messrs De La Rue, in their next issue, to publish a certain number of copies, with stronger covers, and in a style better adapted for constant use.

The volume of Messrs Smith needs no comment from us. It has reached the tenth edition, and continues to merit increased patronage, from the unceasing desire on the part of the publishers to make it more and more worthy of the notice of the profession.

Griffith's Universal Formulary. Revised and Extended by Dr THOMAS. Philadelphia: 1854.

THIS is a very excellent formulary, and is one of the most complete works of the kind in any language. The introduction contains tables and observations on the weights and measures employed for pharmaceutical purposes in the United States and in foreign countries, and an explanation or vocabulary of the principal abbreviations and Latin terms used in writing prescriptions, followed by observations on the management of the sick-room, with rules for the administration of the different classes of medicines. The formulary is arranged alphabetically, according to the pharmaceutic names adopted in the United States Pharmacopœia; but in each formula, the English appellations for the articles composing it are used, and the quantities of these ingredients are expressed in words, and not in the usual pharmaceutic signs. Such changes are as yet regarded in this country as innovations, though they have been long currently adopted in France, and without any bad results. We trust that the time is not far distant, when some modification of our present cumbrous and inaccurate terminology will be introduced. As in Trousseau's *Matière Médicale*, and in Mr Ware's recent volume, we have here a valuable "Index of Diseases and their Remedies," and what is of the greatest use for ready reference, not only a general index extending over fifty-seven pages, but also a copious "index of pharmaceutical and botanical names." The book is professedly a compilation, but it is arranged and edited with great care, every source from which information has been obtained being duly noted. To the student as well as to the practitioner actively engaged in his profession, this formulary will prove a useful companion.

Part Third.

MEDICAL NEWS.

THE MONTH.

THE University authorities of Edinburgh have awarded a pension of L.250 per annum to Dr Alison, Emeritus Professor of Medicine. We believe that the Patrons and Senatus have, in this instance, given the largest amount at their disposal. In addition, Dr Alison's case is deserving the attention of Government, and we trust that proper means will be adopted to have it adequately represented in the right quarter. Eminence in medicine, like eminence in any department of science or art, is entitled to public recognition ; but Dr Alison's labours among the poor, and his important investigations regarding pauperism and epidemics, have placed him in the foremost ranks as a public benefactor, and have established a claim which no government could consistently overlook.

In compliance with the letter of the Thomsonian Bequest, Professor Allman has commenced a separate course of lectures on Mineralogy in the University of Edinburgh. The students of the Natural History class are allowed to attend gratuitously.

The case of Palmer continues to excite painful interest. The coroner's inquest has returned a verdict against him for the murder of his wife and brother, so that, with Cook's case, the Crown has now the option of trying him for three crimes. The other deaths are by no means clear of doubt, but the evidence is not of such a tangible description as to warrant distinct findings, and there are other accusations against the prisoner in which suspicion and uncertainty equally cast their shadows over him, but, probably, enough has already been elicited as a basis for satisfactory inquiry. The occurrence of the Rugeley tragedies, and more recently a case in Manchester, so soon after the St Fergus and Wooler murders, have engendered mistrust in some minds as to medical practitioners, and as to the possible revival of the wholesale system of poisoning which prevailed about two centuries ago. That such a feeling should arise at the first intelligence of startling crimes is quite natural, but we have no apprehension that these impressions will be lasting, as we are thoroughly persuaded that there is no well-founded reason that they should be so. The medical profession, cannot more than other callings, expect that its ranks shall continue to be free from criminals; but taking into account the temptations and trials of medical life, and its facilities for crime, we have no hesitation in affirming that the practitioners of medicine will bear comparison and stand in favourable contrast in point of purity of character, with any other class of the community. The practice of medicine entails labour and effort to the very end. The lawyer may aspire to the income and repose of the bench; the clergyman to the revenues and ease of the mitre; but physicians even of the highest grade, must work on till the very last; and they can only be paid as they work, as scarcely any of the public appointments which fall to the lot of all other men, are considered eligible for them. They are, therefore, open to temptation without doubt, but the question is, have they been so tempted? Weighed by whatever balance, have they, as a profession, been found wanting? Assuredly they have not. It is not they who have watched over sick-beds and sought to take advantage of enfeebled minds, and of plastic intellects. The gifts and bequests that have been deducted from the inheritances of relations, have certainly not often found their way to the coffers of the medical attendant. We have no fear, therefore, that the profession will fall below its usual standard of morality. As to its standard of competency, when called in to counteract the efforts of the poisoner, we leave that part of the subject to the able paper of Professor Christison on the Wooler case, contained in the present number. And, finally, as to the increase of poisoning, we have to remark, that modes of murder adapt themselves to the ever changing states of society. Personal robbery and murder is rare, because little is now carried on the person; and household robbery and murder is rare, because of police efficiency. Robbers only murder incidentally, but the large domain of hate is as wide and fruitful of crime as ever. Conjugal dislikes, lovers' quarrels, and professional rivalries, we shall have so long as the world lasts, and for the settlement of these the bowl will ever assert its superiority over the cord, the bludgeon, or the pistol. The fixity of human nature in its Cain-like instincts, places this beyond a doubt. But are we not at present threatened with a new kind of slaughter—namely, insurance murders? We are; but fortunately life assurance can be placed under such restrictions, that the danger may be lessened to an almost unlimited extent. No person can legally insure the life of another, unless he has a pecuniary interest in the life of that other. This was the blunder in the St Fergus case, the payments on which have not, and probably never will be claimed. In their eagerness for business, Assurance Companies have not hitherto been careful to warn insurers as to the absolute necessity of pecuniary interest in the lives of those whom they insure; but in future this must be made imperative—the pecuniary interest must not only be avowed, but explained and proven, and the sum assured must be in accordance with the amount at stake, and with the further stipulation, that any collusion or fraud shall vitiate the transaction. Were this method adopted, all temptation to commit such murders as have recently been the topics of discussion, would be greatly, if not entirely, obviated. It would also—although it might not be insisted on in all cases—be desirable, as suggested in the recent debate at the Edinburgh Medico-Chirurgical Society, that the party whose life is the subject of risk, should be informed of the circumstance. Fenced round with such preventions, insurance would cease to be an investment for the poisoner.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXXV.

Dec. 19, 1855.—Dr SELLER, President of the Society, in the Chair.

I. CASE OF MALFORMED HEART.

Dr Haldane and *Dr Struthers* presented the following Report on Dr Wilson's communication at last meeting of the Society.

The upper portion of the ventricular septum was deficient ; a rounded opening was thereby left through which the fore-finger could be passed from one ventricle into the other. The upper boundary of the opening was ·3 inch below the attached edge of the aortic semilunar valve. It was crossed by two or three of the chordæ tendineæ of the tricuspid valve. The aorta was much narrower than the pulmonary artery, immediately above the semilunar valves the circumference of the aorta was 1·2 inch, while in the same situation, that of the pulmonary artery was 2·3 inches. The foramen ovale was to a great degree closed, but a valvular opening of the size of a goose quill was left.

The mitral and tricuspid orifices were of the normal size—each admitted the point of one finger.

The walls of the right ventricle were hypertrophied—at their thickest part the thickness was three lines. The walls of the left ventricle were much the same thickness. The weight of the heart was 3¼ oz.

II. TUMORS OF THE TESTICLE AND SPERMATIC CORD.

Mr Spence exhibited two preparations of tumors,—first, a fibro-cystic tumor of the testicle, weighing 4 lb. 10 oz., removed from a man æt 54.

Mr Spence observed that it was a good example of the slow development of tumors of this class ; it had been growing gradually for upwards of seven years, and gave rise to no uneasiness except from its great bulk and weight, and the patient's health was unaffected. Its removal was readily accomplished, and the greater part of the wound healed by the first intention, except at the point where the ligature on the spermatic vessels hung out.

The other tumor formed a marked contrast to the former. It was a very large medullary tumor developed in the cord. It weighed, when removed, nearly 6 lbs. Its progress had been very rapid, having been first noticed less than two years ago. It had commenced above at the external inguinal ring, and gradually increased downwards, its rapid increase latterly being very great, attended with lancinating, and burning pain, and marked affection of the general health, although the glands in the groin were not affected. From a portion of the tumor extending up into the inguinal canal, it was necessary to slit open the tendon of the oblique, and clear the cord high up. This was done cautiously, and the tumor then readily and fully removed. Suppuration and a sloughing condition of the upper part of the wound supervened, leading ultimately to peritonitis, in which the patient sank. The section of the tumor exhibited the characteristic appearances of such growths ; the medullary matter was arranged in masses, separated by septa, forming cysts. One of these was seen to have projected upwards in front of the cord. The testicle itself was seen to be free from disease, and lying at the bottom of the tumor, in the tunica vaginalis, which was distended with opaque milky-looking serum.

Both the tumors had been injected minutely with fine size, and Mr Spence drew attention to the small amount of vascularity in the intimate structure of the new growth in both tumors.

III. LIMITED SLOUGHING OF THE NECK, AFTER VERY SLIGHT PRIMARY SYMPTOMS IN SCARLATINA.

Dr W. T. Gairdner showed a small slough, apparently of cellular tissue, and about the size of a cherry-stone, which had been hawked up from the throat of a girl affected with scarlatina, under the following circumstances. The patient had the primary fever in the mildest possible form; so slightly, indeed, that neither by the eruption nor by the throat affection, had he (Dr G.) been perfectly assured of the existence of scarlet fever until slight desquamation began, and became attended with albuminuria lasting for several days. After about eight days, convalescence, which had fairly set in, was interrupted by renewed fever, and by a good deal of pain in the throat and stiffness of the neck, which became the seat of a limited swelling below the angle of the jaw, so tender to the touch as to demand the application of a few leeches. The soft palate was a little swollen, and there was a patch of yellowish mucus, but no visible ulceration of the tonsils, nor had the tongue the characteristic appearance of the primary fever. The external swelling subsided rapidly so soon as the slough was discharged, and the albuminuria soon disappeared.

The anomaly in the case was the formation of a limited one-sided sloughing abscess of the cellular tissue of the neck, during the period of desquamation, when the primary fever and sore throat were so inconsiderable as to be scarcely characteristic of the disease.

IV. ADHESION OF PERICARDIUM; DILATATION WITH VALVULAR DISEASE OF THE HEART.

Dr W. T. Gairdner showed two preparations illustrative of the above morbid conditions. In the case of dilatation there was a well marked mitral murmur, which Dr G. referred to the principle previously enunciated by him in the Society, of the production of mitral murmur in dilated heart apart from structural insufficiency of the valve to close the orifice. In this case, however, both the valve and the opening were greatly enlarged. Both the cases illustrated some points in the history of pericardial adhesions.

Dr Haldane stated that he had examined the structure of the heart which had been last described by Dr Gairdner. It presented a very marked instance of fatty degeneration. Some of the portions examined exhibited a great abundance of fatty granules interspersed among the muscular fibrillæ, and the transverse striæ in some parts were entirely obliterated.

V. ACCOUNT OF A CASE OF CHRONIC HYDROCEPHALUS, ACCOMPANIED BY CANCER AT THE BASE OF THE BRAIN. HISTORY OF CASE BY DR WARBURTON BEGBIE. ACCOUNT OF MORBID APPEARANCES BY DR HALDANE.

(*This paper appears in the present number of the Journal.*)

Dr Gairdner, senior, would offer a single remark on a subject of a collateral kind arising out of this case. It was now many years since he had communicated to this Society [*Edin. Med. and Sur. Jour.*, vol. xlii.] a case in which the same left middle lobe of the brain was thoroughly disintegrated and destroyed, not indeed by cancerous, but by tubercular disease. In that case, a prominent symptom was inability to finish a sentence, apparently from the difficulty of getting hold of the right word, rather than from the absence of the idea to which he wished to give utterance. Dr G. remembered that some of his phrenological friends had told him at the time that the middle lobe was the seat of their organ of language. Yet here was a case in which the middle lobe was gone, and in which no such symptoms had presented themselves. This ought to make us cautious in our inferences from such cases.

Mr Lister thought the length of time which this patient had lived rendered the case peculiarly interesting; it was certainly very rare for a patient suffering from medullary cancer to have his life prolonged for eleven years. Mr L. wished to know whether the dense fibrous portion of the tumor had been examined, and what appearance it presented under the microscope.

Dr John Struthers also thought that the time to which the life of the patient had been prolonged, was a very rare feature in a case of soft cancer. He had dissected the brain of a patient who had died after a few hours illness, in which there was a considerable quantity of water present, and a tumor was found in the third ventricle,—and in this case there had been no disturbance of the mental faculties observed. It had been frequently noticed that large portions of the brain had been lost without any of the mental powers being subsequently impaired; but in these cases it was to be acknowledged that the lesion had only affected one side of the brain; but, in this case, it was remarkable that, notwithstanding the extensive disease present, there had been no affection of the mental powers. Dr S. was not fully satisfied from the evidence given that it was really a case of cancer. He wished also to notice the reference made to the size of the eyes. It was a common idea that the eye varied in size in different races of men. In the Chinese, for instance, the eye was believed to be smaller than in the white races—the difference in appearance depended on the size of the fissure of the eyelids—in the Chinese, which he had observed in the living subject, there was a fold of skin which limited the extent of the exposed portion of the eye; the eye itself, with the orbit, he had found, did not vary in size.

Dr Haldane replied that no one could have hesitated to pronounce upon the character of the tumor. The external appearance, and the structure, as it appeared under the microscope, left no doubt that it was cancer—its character was very decided. Dr H. granted that it might have been originally simple in its nature, but the cancerous structure had become fully developed. In reply to the inquires of Mr Lister, Dr H. stated that the lower part of the tumor, firm and fibrous in its structure, presented under the microscope the ordinary appearance of fibrous tissue, with a comparatively small quantity of cells and nuclei.

Dr Warburton Begbie had no doubt whatever of the tumor presenting the characteristics of true cancer. It had none of the appearances of tubercular formations, such as are frequently found in tumors of the brain. He was quite prepared, however, to admit that the tumor may not have been *ab initio* of a cancerous nature.

VI.—ON SOME POINTS IN THE ANATOMY OF TALIPES VARUS. BY A. M. EDWARDS, ESQ., F.R.C.S.

Mr Edwards drew the attention of the Society to a foot affected with talipes varus to an extreme degree. It was the right foot of an adult, in a state of extreme extension from the drawing upwards of the heel by the tendo-Achillis; its two anterior thirds inverted, so that the plane of the sole was vertical, and looked inwards and backwards; and not only inverted, but adducted towards the middle line, the toes gathered together, the great toe flexed, and adducted across their plantar aspect; the dorsum of the foot very convex, especially where the astragalus projected about an inch within and below the external malleolus; from this point to the outer edge of the foot, the skin was hardened and discoloured, showing the part which sustained the weight of the body in locomotion. The dissection had consisted in merely removing the skin a few inches above and below the internal malleolus, and the parts disturbed as little as possible. In this uncovered portion, about an inch of the tendon of the tibialis posticus was seen passing to its insertion into the scaphoid bone, at a considerable distance from the artery and other important structures. It was in this situation that Professor Syme, in one of his published lectures, recommended it to be divided in operating for the cure of talipes varus, viz., "a little below and anterior to the tip of the internal malleolus." Shortly after the publication of this lecture, Mr Adams of London published some remarks on the subject; and he stated, that inasmuch as the tibialis posticus draws the scaphoid upwards, and underneath the internal malleolus, its tendon could not exist in the situation where Professor Syme recommended it to be divided,—that is, in cases of congenital talipes. There was no history to say whether the case before the Society was congenital or not; but it could make but little difference in the anatomy of the parts,—Dr

Little himself saying, that "the disease, in the non-congenital cases, presents the same inflexible and essential characters as the congenital; that it advances to the same grade of deformity, and is remediable by the same means." In the preparation, the scaphoid is drawn upwards, and is almost perpendicular in position; but still there is nearly an inch of tendon between the margin of the internal annular ligament and its insertion; and even were the scaphoid drawn up till it came in contact with the malleolus, its tendon must still be "immediately below and a little anterior to the tip of the internal malleolus." The posterior tibial tendon, however, is not the most powerful agent in the deformity, though, from its insertion not only into the scaphoid and the first metatarsal bone, it is enabled to invert the foot, but it also has expansions into the external cuneiform and the groove on the os calcis for the flexor longus pollicis, still its power is limited; but the action of the muscles inserted into the tendo-Achillis is of far greater power, and, with such a lever as the os calcis, can turn the foot in almost any direction once their line of action is perverted. According to Mr Adams, the posterior third of the foot can only move in the directions of flexion and extension; but the os calcis can do more than this: it has a lateral movement independent of the astragalus, limited in its extent by the interosseous ligament. Winslow described this movement. He says, "It can make half rotations under the astragalus, and obliges the scaphoid to slide in the same direction with it on the anterior side of the astragalus; and this motion of the two bones is communicated to all the rest." Owing partly to a more extensive insertion into the inner side of the os calcis, and to the attachments of the plantar fascia, the gastrocnemii and solei have a tendency to invert the foot, by which the outer edge is brought into firmer contact with the ground. No doubt, inversion and eversion take place principally at the joints, between the os calcis and cuboid, and the scaphoid and astragalus; but these motions cannot take place to any extent without the os calcis participating. So it appeared, from the preparation exhibited, and from the ordinary anatomy of the parts, that the tendo-Achillis was a cause of distortion in talipes varus to a degree in proportion with its great power,—its line of action having been perverted by the action of the muscles inserted into the inner toes of the foot, and its natural tendency to invert the foot increased by them, especially by the tibialis posticus, the tendon of which is, as was stated by Professor Syme, and subsequently by Mr Lister, at a point a little below and anterior to the tip of the internal malleolus.

The *President* remarked, that he hoped the difficult point suggested by Mr Edwards' paper would receive some elucidation, from the array of surgeons which he observed present at the meeting.

Dr John Struthers exhibited to the Society a dissection of a case of talipes varus, and also, to contrast with it, a dissection of the tendons and blood-vessels of a natural foot. The preparation was from an adult case of double varus. The other foot was much in the same condition, and is now in the collection of Dr James Bird, at St Mary's Hospital, London. The foot is turned in at right angles to the leg, or nearly so; and the sole of the foot faces backwards. The foot had rested on an acquired heel or pad, on the outer and back part of the dorsum. The cuboid and fore part of the os calcis and base of the fifth metatarsal bone formed the bony projection, and between these and the thickened skin there is an irregular bursa, and the flattened tendon of the peroneus brevis muscle. The astragalus is thrown forwards and outwards, partially out of the ankle socket. The fore part of the os calcis is directed downwards and outwards; behind, it is directed upwards and inwards, and raised so that the upper edge of the tuberosity is on a level with the lower edge of the tibia. The tendo Achillis is about one-third the natural size, and is shortened so as to prevent the heel descending above half an inch. The whole foot is bent upon itself; the outer edge convex, the inner edge and sole concave. On the convexity, the os calcis and fifth metatarsal bone approach at a right angle, which is rounded off and most prominent at the intervening cuboid. The front foot (metatarsal and toe parts) seems in itself natural. The cuneiform bones seem also natural, so far as the depth of my dissection can show; but the cuboid is unnaturally convex and prominent on the dorsum at the centre of the acquired heel.

The position of the scaphoid bone deserves particular remark. Its outer end projects on the dorsum of the foot, in front of the head of the astragalus. Its inner end, usually called the tuberosity, is nowhere to be seen on the inner side, but lies close below the fore part of the internal malleolus. It does not lie between the internal cuneiform and the malleolus on the one hand, and the inner and fore part (sustaining process) of the os calcis on the other, but is as if pushed outwards from this space. The internal cuneiform lies here, but is placed farther back, or nearer the malleolus than the scaphoid in a natural foot. So far back is it, as to be within half an inch of the sustaining process of the os calcis, and partially overhung by the malleolus, being half an inch below or underneath it, and separated by a spongy mass like fibro-cartilage. The inner edge and sole are bent upon themselves like a bow, and the plantar fascia is contracted, like the string of the bow, and acts as a strong resisting ligament keeping up the arched form.

The natural *motions* at the joints of the foot are considerably modified. At the ankle joint, flexion and extension, the only natural movements, are limited, chiefly by strongly developed anterior ligaments; and there is nearly as much lateral motion, owing to the altered position of the astragalus. The lateral motions of the foot occur partly as in the natural state, at the inferior and anterior joints of the astragalus, but largely behind the internal cuneiform, between it and the scaphoid, and more internally at the spongy mass between it and the malleolus.

The extent of motion is such, that from being at right angles to the inner side of the tibia, the foot can be stretched out, or abducted, one-third of the distance to the straight position.

The tibiales are the most contracted or most resisting *tendons*. The tibialis anticus passes down, not in front of but over the fore part of the side of the malleolus, and is inserted into the metatarsal bone of the great toe, and but slightly into the very fore part of the internal cuneiform. In the rectangular degree of the varus, there is an inch of this tendon below the malleolus, in the stretched or abducted position, an inch and a half. Here it is prominent and isolated, and could be easily divided. The tibialis posticus has, above and behind the malleolus, the same position as in the natural foot. It is seen to run down on the back of the malleolus, and then suddenly to disappear, sinking in underneath it and seeming to be lost in the spongy mass which fills up the narrow space between the cuneiform bone and malleolus; but it is mainly continued through or behind this mass, to be inserted into the scaphoid, just underneath the fore part of the malleolus, but deeper than or overhung by it. There is a bursa or synovial sheath between the tendon and the lower edge of the malleolus, and another bursa between the spongy mass and the cuneiform bone. The tendon, therefore, does not reach down beyond the malleolus in this instance of complete varus. As soon as it gets to the lower part of the back of the malleolus, it sinks deeply in underneath that process. When I abduct or stretch this foot, the tendon does not seem to be carried much forwards. The spongy mass is stretched and pulled forwards, and brings the tendon about a quarter of an inch forwards with it; but even this short piece of the tendon is not isolated from the spongy mass, and is still deep sunk in. The scaphoid, indeed, is in this preparation but little affected by the stretching or abduction, as the motion occurs chiefly immediately behind the cuneiform. Even although the scaphoid was much acted on by the stretching, it would not bring forwards the tendon in the same proportion as it does that of the anticus, as the latter is farther from the point of motion, and thereby more affected by it; whilst the posticus has first to be brought out from being sunk deeply in below the malleolus, before the stretching could carry it forwards to anything like its natural position.

Whether this description will apply to other cases I cannot answer; but I have for several years used this dissection, in my anatomical lectures, to show that in the condition of complete varus, the tendon of the tibialis posticus was so altered in position, in its last stage, that it could not be divided below the malleolus, without being aware that any one else had pointed this out, or that there was any dispute about it.

This dissection also shows other tendons to be concerned in complete or severe varus. The extensor pollicis is much contracted, and even the extensor longus digitorum is partially so. The great inversion converts these tendons into inverters. If they are not producers of varus, they become obstacles to its cure unless divided. The extensor pollicis is easily divided above the metatarsal bone. Below, the flexor longus digitorum and flexor longus pollicis are also contracted, and are seen, when pulled, to have a strong inverting power. The flexor pollicis is easily divided below the metatarsal bone, some of the surrounding parts taking their chance at the same time. The flexor longus digitorum may be divided at the same time as the tibialis posticus, on the back of the malleolus. It will generally be divided at any rate with that tendon, from its lying so close as partly to overlap it from the outside; but I reckon its division at all times advantageous, as it has naturally an adducting power on the foot, although its oblique action on the toes is corrected by the flexor accessorius.

On the back of the malleolus proper, the tibialis posticus and flexor longus digitorum are seen to lie in a groove or grooves, as in the natural foot, each covered by a fibrous theca; the flexor parallel to the outside of the tibialis. Behind the upper part of the malleolus, the dissection shows them lying on the level bone, not covered by much theca, the tibialis close behind the margin of the tibia, the flexor to its outside and partly lying on it. It is here where I prefer dividing these tendons. Here the artery and its venæ comites lie about a third of an inch more externally, this being the adult proportion. In the child, the distance must be less in proportion to the size.

The only objection to this high operation on the tibialis posticus is the chance of dividing the artery. I have seen some arterial bleeding more than once, and it has occurred once in my own hands. Whether this is from the divided or wounded posterior tibial trunk or only from a malleolar branch is another question. I suspect, however, that it is the posterior tibial itself; first, because I have often seen, on dissection of the wound, that the artery had been divided by the pupils practising the operation on the adult subject; and, second, from the consideration that in the child, the distance of the artery from what we aim at dividing, is very little. On the other hand, the bleeding is less active, and much more easily restrained, than we would expect from a wound in even an infant's posterior tibial. I once had more active bleeding from the internal plantar, in dividing the plantar fascia, but there was no trouble in restraining it. The obliquity of the wound may prevent jetting, but the fact is, that occasionally after this operation, red blood comes welling out with tolerable activity; that this, however, is easily restrained by a compress of lint, such as we place over any sub-cutaneous puncture, and a bandage applied with only ordinary tightness; and that matters are all right when this bandage and compress are removed in a few days. It is natural to think of this as a danger, as indeed a very serious matter, and so it would be in an adult; but the fact is, the danger, judging by the result, is imaginary. Be it the artery or not, no serious result, or even trouble, has ever to my knowledge occurred. I do not wish to encourage rashness, but have no hesitation in stating my opinion that this supposed danger is a bugbear, is only an alarm not a danger; that the artery, or an artery, will occasionally be divided in the best hands, but that the result shows it does not much matter in children.

The low operation is the safest as regards the artery; the high operation is the most exact and certain as regards division of the tendon, which is the primary consideration. Our object in these operations is to divide *the tendon, the whole tendon, and nothing but the tendon;* as little besides the tendon as possible, but especially the whole tendon. The major consideration is to get the tendon divided, and the question where would be a minor one, were it not that here the major depends on the minor; as it is clear the tendon cannot be divided below the malleolus if it does not exist there. I say this only of severe cases of varus, as rigid as the one above described. If in children, when the bones are still largely cartilaginous and the ligaments not yet shortened, the foot can be abducted so far as to bring the tendon into its more normal position, as I understand has been shown by Professor Syme, then there is no reason why it should not be divided there, if the surgeon prefers the low to the high operation. After division of the tibialis anticus, if the knife be then re-introduced at the same puncture and passed backwards, the tendon of the posticus may be readily divided in the natural foot, though it lies in a strong theca and not upon bone, which renders the operation less exact and certain than the high one. In the foot shown by Mr Edwards, the tendon would have been easily divided here, but on the other hand, there is not much varus as the foot now lies dissected, though a good deal of rotation inwards so as to expose the sole. It would be well actually to demonstrate, by repeated dissection of varus in children, whether the tendon could be stretched forwards. If it can, it is a very important practical consideration, and not to be set aside by dissections of unyielding adult feet. If, after division of the tendo Achillis and tibialis anticus, the foot is still confined, and becomes relaxed after the introduction of the tenotome and the perceptible division of a tendon here, it must, I think, be granted that the tibialis posticus has been brought forwards and has been divided, or at any rate, that everything has been divided that requires. There is, in fact, a standing practical rule, which supersedes many other considerations, always to divide what is rigid, whatever it be.

I do not agree with those who hold the tendo Achillis to be one of the producers of varus, or that it is primarily connected with it. Not unless there is some degree of equinus as well as varus. How can it do so? Is its anatomy such that it can act laterally on the heel? But does it do so? Is the heel not drawn straight up in pes equinus? I do not say this with the view of objecting to its division. Equino-varus is common, and even although the heel is not raised, the tendo Achillis is still to be regarded as shortened if the heel cannot be pointed down. It therefore often requires division; but I would divide it in all cases, as it gives the surgeon more complete command over the foot, which then lies more quietly in the boot. In speaking of cures, let it be recollected that the word, as employed, does not always mean the same thing, that there are different degrees of improvement, different degrees of cure; and that the result may be attained by much less tedious use of the apparatus when all of the contracted tendons have been divided.

The foot may be moved laterally from the heel; but the power would require to act from one side; when the heel is moved outwards the front of the foot moves inwards, and *vice versa*. In my dissection, the heel is turned upwards and inwards. But this bent position of the whole foot seems to be explained as the result of walking on the varus. This would throw the fore part of the os calcis outwards and give it the oblique position. The natural lateral motion of the foot is such that when the front moves in, the heel moves out, and these lateral motions are governed by the tibiales and peronei, which are inserted in front of the astragalus, the fixed bone on which the rest of the foot performs its lateral motions.

It is well to recognize clearly the *natural motions of the foot* as bearing on the distortions. They are—1. At the ankle, the simple motion of flexion and extension. If, as some think, there is any lateral motion at the ankle joint in its extended position, it must be very slight indeed. The next are at the tarsal joints. 2. Abduction and adduction 3. Slight rotation inwards and outwards, by which the foot, without any or much lateral change of position, can be rotated so as to turn the edges up and down. If rotation inwards be carried the length of distortion, then the sole will face inwards and the foot rest on its outer edge. The rotatory motion occurs chiefly at the intertarsal joint, between the scaphoid and cuboid in front, and the astragalus and os calcis behind. It does not affect the heel, as the os calcis cannot truly rotate on the astragalus. Rotation is but a slight motion, and is usually associated with the lateral motions; rotation inwards with adduction, rotation outwards with abduction. These (abduction and adduction) are the important motions, properly speaking, the only *lateral* motions. They occur between the astragalus and the rest of the foot. The whole foot moves on the astragalus, which is laterally locked in the ankle socket. When the toes move in, the heel moves out, and *vice versa*. The joints are, first, the ball and socket joint, between the head of the astragalus and the socket formed by the sustaining process of the os calcis, the scaphoid, and the calcaneo-scaphoid ligament. The motion here is very free; but could not be so without the action of, second, the joint between the body of the astragalus and the os calcis, which, for a name, may be called the accessory joint, while the other is the ball and socket. The free lateral motions are not at the whole transverse or intertarsal joint, for the calcaneo-cuboid joint is a firm one, allowing, both owing to its surfaces and ligaments, of slight rotatory and gliding movements only. Laxity of this joint, sufficient to allow of free lateral motion, would have weakened the foot across its whole breadth. Therefore, the accessory joint to the ball and socket is the posterior calcaneo-astragaloid joint. Whatever may be thought from looking at the bones, there is in reality only one kind of motion of the astragalus—the head moves one way and the body another. The head moves inwards at the ball and socket joint, and the body makes a contrary motion forwards and outwards at the accessory joint. This may be called rotatory, but is not so in the ordinary sense; it is not axial rotation as at the hip and shoulder. It is an oblique lateral motion of the bone at two joints, as if it rotated on a vertical axis, and the interosseous ligament guides them and then checks them. This motion is used from above, in standing; the leg and astragalus, as one piece, move upon the fixed foot. The limb has thus a rolling motion upon the foot, as if it stood on a ball, which rolls or inclines as the limb inclines or twists, and thus relieves the foot, as well as the malleoli, from twisting or unequal pressure. Again, reversing the fixed point, the foot has the same motion upon the astragalus. The socket now moves inwards and backwards, upon the fixed ball, and, at the accessory joint, the os calcis glides forwards and outwards upon the astragalus. This gives adduction of the front foot and abduction of the heel, and *vice versa;* and both motions are then checked by the interosseous ligament, and also by the middle portion of the external lateral ligament of the ankle. Abduction is also checked by the connection between the deltoid and calcaneo-scaphoid ligaments. The ball and socket joint is, it should be added, only so in appearance, at least its great use is in the lateral direction, as a joint not for universal but for free lateral movement. Indeed, the ball has secondary facets, corresponding to the three parts of the socket. These lateral motions are in addition to the turning out and in of the toes from the hip joint, by the ordinary rolling motion of the entire limb.

Mr Lister observed, with reference to the remarks which had fallen from Dr Struthers, that he could not understand for what reason the tendo-Achillis should be divided, if not contracted, since, in that case, the surgeon would have the limb quite at command without dividing the tendon; but, in truth, the tendo-Achillis was contracted in the vast majority of cases of varus. With regard to the action of the tendo-Achillis, there could be no question that its essential effect was drawing the point of the calcaneum directly upward; but the question was, whether its contraction might not aggravate inversion previously induced by other causes. As to the possibility of dividing the tibialis posticus below the malleolus, Dr Struthers had admitted all that he (Mr Lister) ever contended for, which was, not that the proceeding could be practised in rigid adult cases of varus, but that, in infants, the parts were so yielding, that the foot could be brought, without any great degree of force, nearly or quite into the natural position, when the tendon in question came to occupy its usual situation below the malleolus, where it could be readily reached by the knife.

Mr Spence said, that he had always been in the habit of dividing the tendon of the tibialis posticus where it was placed behind the internal malleolus, for two reasons: First, because he had never been able to feel the tense resistance at the lower point, so as to make sure of dividing it there; and, secondly, because, from what he had seen of its position in marked cases of varus, he knew its presence could not be depended on at that part of the foot. He thought the benefit derived from the division at the point alluded to was from the division of some thickened aponeurotic bands, such as were seen in the preparation before the Society. Such bands were often more in fault than the tendons; and as their division was often attended by distinct snap, it might lead to the supposition that a tendon had been divided. As to the risk to the posterior tibial artery, he thought that the supposition of its being wounded frequently was erroneous; the bleeding arose, he believed, from the smaller branches. It should be recollected that the blood would flow into the sheath of the divided tendons, and that, when the surgeon pressed the foot outwards after their division, the blood would be pumped out of the small punctured wound in a stream, and with a jerk, which would look more formidable than it really was. At all events, this he knew, that though he had operated very frequently in such cases, and assisted others in operating, he had never seen any trouble in arresting the bleeding, nor any necessity for the tight bandaging which had been spoken of.

Mr Edwards said, in reply to Dr Struthers' remarks, that he had thought it unnecessary to enter fully into anatomical detail before such a Society. That he had advocated no special situation for the division of the tibialis posticus tendon, not being of opinion that it was a surgical question of any importance,—his remarks had been made purely with reference to the anatomical question, whether in talipes varus the tibialis posticus tendon was to be found where Professor Syme recommended its division; and where Mr Adams denied its existence, there it certainly did exist, however, in the dissection he had laid before the Society, and in the one Dr Struthers had kindly brought with him and exhibited to the Society, which was a more severe case, and in which less of the tendon was visible below the malleolus than would have been, had not its expansion forwards been divided in the dissection. That Dr Struthers' remarks did not seem to disprove what he had stated with reference to the tendency of the tendo-Achillis to invert the foot: and the turning in of the os calcis, in Dr Struthers' own preparation, showed that extreme inversion implicated the posterior third of the foot, as well as the two-thirds anterior to the astragalo-scaphoid and calcaneo-cuboid joints.

VII.—CASE OF POISONING BY TOBACCO. BY DR SKAE OF MORNINGSIDE ASYLUM.

(*This paper appeared in the January Number of the Journal.*)

Dr Haldane remarked, that in cases of poisoning with nicotine, which had been recently reported, it had been noticed that the victim had uttered several shrieks, it was believed after the administration of the poison. Nicotine was known to operate as an active irritant, and to produce results similar to those of the corrosive poisons.

Dr W. T. Gairdner had instituted some experiments, in company with Drs Anderson and Fleming as to the action of nicotine upon dogs. The nicotine had been prepared with the greatest care by Dr Anderson. But he was surprised to find that a very large quantity was required to kill a dog, even to the extent of half a dram or a dram. It was injected into the cellular tissue. When it proved fatal, the *rigor mortis* was always present. He had never seen the flaccidity of the muscular tissue, as described by Sir B. Brodie.

January 16, 1856.—Dr Hamilton, in the Chair.

I.—CASE OF COMMINUTED FRACTURE.

The Secretary, *Dr W. T. Gairdner*, in the absence of Mr Spence, exhibited a preparation illustrative of comminuted fracture produced by a round shot.

The injury was received in a naval engagement in the neighbourhood of Riga, a 24lb. shot having struck the forearm. Amputation was performed, and the patient made a good recovery. The pieces of bone were forwarded to Mr Spence by Dr Beveridge of H. M. S. "Hawk."

II.—OBSERVATIONS ON THE TRIAL OF MR WOOLER FOR POISONING. BY PROFESSOR CHRISTISON.

(*This paper was a continuation of the article in the last number of this Journal, and is concluded in the present number.*)

Dr Christison remarked that he had brought the present part of his paper before the Society, at the recommendation of some members, with the view of eliciting the sentiments of the profession on the several points alluded to in his observations. More especially he felt it desirable that these sentiments should be expressed relative to the last topic. The treatment experienced by the principal witnesses at the hands of the prisoner's counsel, had justly excited great indignation throughout the profession; and he had by no means said all which might be said on that subject.

He begged to offer a remark relative to the newspaper report of this trial, the only reports yet published. A claim had been set up for their accuracy and authenticity, which they can by no means support. But the fact is that no report can be accurate and authentic, which does not give both question and answer—which none of the newspaper reports of this trial have given. Instead of that, they give the reporter's ideas of what is implied by both conjointly. Hence the report is often wrong. And, indeed, he had occasion to remark, that newspaper reports of scientific evidence, is seldom right, and often absurdly wrong. It is well known that newspaper reports are not admitted as evidence in courts of law, and the reason is obvious.

He had also had occasion to remark a want of impartiality in newspaper reports. In the reports of the trial of Mr Wooler, care is taken to record all the successful attempts of the counsel to throw doubt over the medical evidence; but, on repeated occasions, when the medical witnesses got the better of the counsel, no notice is taken of the circumstance. On one occasion, particularly when Sergeant Wilkins attempted to charge Mr Henzell with contradictory statement in his examination and cross-examination, Mr Henzell repelled the attempt with complete success; and the judge found that he was right. The audience, delighted at the victory obtained by a young man of slight figure and quiet deportment, over the burly, lion-like counsel, was guilty of the indecent act of applause, for which they were properly admonished by the judge. But no notice is taken of any part of this incident in their reports. The Sergeant turned the applause to good account in his speech, by expressing his virtuous indignation at the audience for applauding what told against the prisoner. The real fact, however, is, that their applause was merely meant to express the Englishman's pleasure at seeing a little man lick another twice his size.

Dr Andrew Wood thought that it was necessary that the very able discussion of the several important subjects noticed in the paper of Dr Christison should receive a distinct expression of opinion from the Society. The professional gentlemen of Darlington, who had been so unfairly represented by the legal functionaries, and by the public press, had a very strong claim upon the sympathy of the profession in general, and these recent events were calculated to convey some very important lessons to other medical men. It might be the lot of any of the members of the Society, we knew not how soon, to be placed in precisely similar circumstances as those which had proved so trying to their professional brethren at Darlington; for their own sakes, therefore, the settlement of the question was of great moment, whether the course followed by the medical gentlemen who were in attendance on Mrs Wooler, was the best that could have been selected; or, were they justly liable to the serious imputations which had been so freely cast upon them. To form a correct estimate of the conduct of the medical men, it was necessary to take into account the peculiar circumstances in which they were placed, previous to the disclosure of the additional particulars brought out in the course of the investigation. In the light of subsequent events, Dr Wood, in some respects, regretted the course which had been followed by the medical men. But it must be considered that there are many diseases of frequent occurrence, cholera for example, the symptoms of which are often very similar to those of poisoning, yet in which the expression of a suspicion of poisoning would be altogether unjustifiable. In the present case, what would have been the consequences if the medical men had expressed their suspicions, and these had been proved to be unfounded? It is obvious that they would have been placed in a position of very great difficulty and serious risk, their professional reputation would have been ruined, and other results, not at all agreeable to contemplate, might have followed. These might be trivial considerations in the estimation of the legal authorities engaged on the trial; but medical men were in a position to realize their true importance. As medical men, we were bound to repudiate in the most emphatic terms, the language employed by the lawyer on this occasion. His language might be justly turned upon himself. For he (Dr Wood) had never seen such an exhibition of the want of good feeling and unordinary sense of propriety. The conduct of this functionary was truly as "*infamous*" as he had represented the conduct of the medical men to be. Considering the almost unexampled circumstances of peculiar difficulty and even of peril, in which these gentlemen were placed, it is most unjustifiable to characterize their conduct as *infamous*. There may have been a degree of ignorance on some points, and a want also of moral courage to meet the strange emergencies of their position, but certainly their conduct was not infamous.

Now, however, the chief point to be kept in view, is what could we have done in the circumstances? Dr Christison has laid the profession under deep obligations, by indicating the right course to follow in such complicated cases; had it been possible to anticipate the course of the subsequent events, it is obvious that much evil might have been averted, had the suspicions entertained by the medical men been communicated to the patient. The first duty, as in all cases, is to save life, and Mrs Wooler's life might have been saved, had this been done even on the 8th.

Dr Gairdner, senior, did not mean to say any thing in addition to the very able discussion of the various important circumstances connected with the trial of Mr Wooler, which was presented in this paper, and with which he fully agreed; but there was another question of importance which he would suggest to the Society. He referred to the entire absence of restrictions upon the granting of assurances upon lives by Life Assurance Associations. At present all restrictions operated to secure the interest of the offices, while the life of the assured was at stake It seemed to Dr G. that the practice of insuring various sums of money in various offices on the life of one individual, without any general register whereby the various insurances could be known, was attended with much risk. Another practice he regarded as equally hazardous, viz., that of effecting insurances on the life of an individual without his knowledge. He had been frequently applied to for his opinion on the state of health of individuals, with the distinct condition attached, that the party chiefly interested should not be informed of the inquiry. Dr G. was quite aware that these questions had no direct reference to the subject immediately before the Society, but he was deeply impressed with their importance, and his suggestion was intended to prepare the minds of his professional brethren for inquiry in a case which was now undergoing legal investigation.

Professor Miller did not wish to question the general correctness of the estimate which Professor Christison put upon the newspaper reports of important legal proceedings, yet he had frequently observed, that when special reports were required, that the proceedings were fully detailed, in the order of examination, by question and answer. He thought the subject brought before the Society of much importance. In the peculiar circumstances in which the medical men were placed in connection with the patient whom they suspected of being poisoned, there were three points specially to be attended to, First, to administer an antidote to the poison supposed to be administered. This was done. Second, to submit the suspected materials to chemical analysis. This they began to do. Third, to use effective measures to cut off supplies of the poison. This point was unfortunately neglected, and it supplies a ground of regret in reviewing the whole transactions. It must not be overlooked, however, that this was a matter involving much difficulty, and requiring much nicety to accomplish ; it was, at the same time, obviously their duty at once to the patient and to the profession. In connection with the intemperate language used by the legal gentlemen towards the medical witnesses, Prof. Miller continued,—If the Society be of one mind, as he (Prof. Miller) was, with the vindication and the more favourable verdict of Professor Christison, who was intimately conversant with all the details of the case, and much better qualified than any merely legal authority for giving a just opinion on the subject—then it was of the greatest importance that the expression of this mind should go abroad to the profession, and also to the general public. It was only just that the medical gentlemen of Darlington should have the benefit of the impartial judgment of their professional brethren, to compensate, as far as possible, for the injurious imputations which had been so ungenerously thrown upon them. He agreed with the suggestion presented by Dr C., that in such cases the suspicions of the physician ought to be communicated to the sufferer.

Dr W. T. Gairdner agreed with the general tenor of the remarks made by Dr Andrew Wood, and also with the suggestion in Dr Christison's paper as to the course to be pursued in a case where poisoning was detected by a medical man, in the person of one of his patients. The patient ought, undoubtedly, to be informed of the discovery, and protected against its consequences. But, in a case of mere suspicion, it was, to say the least, extremely painful and difficult formally to divulge opinions which might or might not be justified by the result; and, accordingly, in the Burdon case the medical men had not ventured to do so. He thought that, in similar circumstances, the proper course was to act upon the suspicions, without formally divulging them. It was possible for a physician, without giving reasons, to insist on placing in the house a confidential person or persons, who would have the entire control of the patient, and would prepare and administer every article of food, drink, or medicine. This proceeding, if permitted, would effectually protect the patient ; if refused, it might then lead to explanations, more or less explicit, according to circumstances. If it was objected that the establishment of such a stringent *cordon* was tantamount to declaring a suspicion of poisoning, Dr G. replied, that it would certainly give the alarm to the guilty person, and probably to others ; but that the medical man was bound, at all hazards, to protect his patient, while he was not responsible for the construction put upon his actions, or bound to give up to any one his reasons for them.

III.—ON THE DEFORMITIES OF THE PELVIS FROM RACHITIS AND MALACOSTEON.

BY DR J. MATTHEWS DUNCAN.

(*This paper was illustrated by diagrams from the work of M. Meyer, of Zurich, and will appear in a future number of the Journal.*)

EDINBURGH OBSTETRICAL SOCIETY.

Session XIV.

INTRA-UTERINE HYDROCEPHALIC FLUID. BY DR MATTHEWS DUNCAN.

A case of hydrocephalus, complicating labour, had recently been under Dr Duncan's care. In the course of it, he had opportunity to collect the hydrocephalic fluid, in a perfectly pure state, before the child's birth. The child's head, presenting, was arrested at the pelvic brim. The pains proved ineffectual to propel it, until after the cranium was emptied of hydrocephalic fluid. This was done by means of a small trocar and canula; and, after the operation, the child was quickly born. It was alive, and lived for two days, dying then from inanition, the consequence of deformities about the mouth.

The hydrocephalic fluid was, next day, subjected to chemical examination by Dr George Wilson, a letter from whom, to Dr Duncan, describing the results, here follows. The examination is peculiarly interesting, from the fluid being intra-uterine.

Laboratory, Surgeons' Hall.

Dr J. Matthews Duncan.

Dear Sir,—The hydrocephalic liquid sent me was examined without delay, and with the following results. It was somewhat opalescent, and deposited on standing fibrinous flocculi. Heat occasioned in it a moderate amount of coagulation, which was increased by the addition of nitric acid; nitrate of silver occasioned an abundant white precipitate, soluble in ammonia; and the liquid was distinctly alkaline to test-paper. It was dried up, and the residue burned to whiteness. The ash left was partly soluble in water, yielding a solution alkaline to test-paper, and containing phosphate of soda as the cause of this alkalinity, besides a trace of soluble sulphates, and a comparatively large amount of chloride of sodium.

The ash, insoluble in water, dissolved with effervescence in hydrochloric acid, and consisted of carbonate and phosphate of lime, and of magnesia, along with a trace of iron.

The characters of the fluid are thus those of a weak solution of albumen; in other words, the same as those of serum, considerably diluted with water.

The numerical results which follow were obtained with the contents of the sp. gravity bottle, amounting, in round numbers, to 1008 grains. The difference between this and 1000 is so small, that, in a case like the present, the figures may be directly compared with those given in the similar analyses already on record, actually made with 1000 grains of fluid:—

Hydrocephalic Liquid.

Specific Gravity 1007·9 at 60° F.

Water,	995·95
Solid Constituents,	11·95
	1007·90
Organic Matter, chiefly Albumen,	3·70
Salts, consisting chiefly of Chloride of Sodium, and Phosphates of the Alkaline Earths and Alkalies,	8·25
	11·95

Yours very truly,

George Wilson.

CASE OF TWINS—PECULIARITY IN VIABILITY OF.

Dr Keiller reported the case of twins, the peculiarity in which was the appearance presented by the children. They were born between the sixth and seventh month, and each weighed under three pounds. They survived three days, during which time respiration was so feeble as scarcely to be observed; their temperature was exceedingly low; but the chief peculiarity consisted in the somewhat putrid aspect which they presented (during life), more especially in the face. No constitutional taint was discovered to have existed in the mother.

Dr Duncan stated that he had seen a case, in consultation with Dr Keith, of a somewhat similar character, but in which the child was even smaller than that reported and exhibited by Dr Keiller.

Dr J. Sidey mentioned a case where the child (born at the seventh month) lived two days, and during that period almost the whole cuticle peeled off, as from a blistered surface. Even during labour some of the cuticle came off. In this case syphilis existed.

CASE OF TWINS.

A peculiarity in a case of twins was reported by *Dr Cumming*. A patient, in the sixth month of pregnancy, having used too much exertion in walking, was seized with sudden distension of the abdomen—to such an extent, that she appeared as if at the full time. Three days afterwards labour came on, and she was delivered of a dead child. Soon after its expulsion, the membranes of a second child presented, which were ruptured, and an immense quantity of liq. amnii escaped with the second child, also dead. Both childrenn resented by the thorax, and had apparently been dead for some days. The placenta was exhibited; it was single, and one of the cords was inserted into the membranes. Dr Cumming stated that the placental bruit was unusually loud in this case, immediately previous to the delivery.

THE ANTIQUITY OF UTERINE SOUNDS AND INTRA-UTERINE PESSARIES.

Dr Simpson communicated a few notes on the above subject, and referred to passages in the works of Hippocrates and other ancient authors, illustrative of the fact that instruments, which are considered as modern, were not only known but used by the ancients. Dr Simpson stated that he might be afterwards induced to make a more extended communication on the subject.

The following cases were mentioned:—*Dr Cumming* stated that he had seen a case of *puerperal phlebitis* terminating fatally, after a very short illness, following the application of the forceps, which were required to complete the delivery, although the labour was in other respects simple.

Dr Keiller mentioned the particulars of a fatal case of *puerperal peritonitis*, death having occurred a month after delivery. The placenta required to be artificially removed. On dissection a considerable quantity of pus was found in the cavity of the pelvis—the peritoneal surface of uterus covered with lymph—as also were the intestines.

Dr Duncan mentioned a case in Aberdeen, which he had seen, and in which the whole *vulva had sloughed*, even although the labour had been in every respect natural.

Dr Simpson mentioned a very rare kind of *rupture* of the *os uteri during labour*—where the anterior part of the os was completely torn off, and protruding from the vagina.

Dr Keiller exhibited the uterus with the placenta attached, and stated that the *Cæsarean section* had been performed, immediately after the *death* of the patient from *œdema glottidis*, with the view of saving the child, which, however, was not saved. (Dr Keiller also exhibited the larynx, which presented a deep excavated ulcer, evidently the cause of the *œdema.*) The attention of the Society was particularly directed to—1*st*, The contracted condition of the uterus, which showed the manner in which the placenta was separated; 2*d*, The elongation of the cervix, which, although the woman was in the eighth month, still existed to a great extent.

Dr Priestley stated that he was engaged in the examination of the microscopic characters of the tissues in Dr Keiller's preparation, and that he would afterwards report the results obtained.

Dr Thomson reported *a case of Induction of Premature Labour*, in which the injections of warm water had *failed*, and in which the rupturing of the membranes had been successful. Mrs T. was delivered in Kelso of three children successively—these were all born dead. She was delivered by Dr T. of a girl at the full time; child born alive; conjugate diameter of pelvis small. Premature labour was brought on, during her fifth pregnancy, at the eighth month. The vagina was simply filled with water by the first enema, on the 19th December

1854; on the 20th the tube was entered into the os uteri, and a few ounces injected; on the 21st the tube was passed three inches within the os, and vagina filled. A slight threatening of labour followed within a few hours, but ceased next day. On the 24th the membranes were ruptured; labour followed that day, and a boy was delivered by forceps.

Dr Cumming mentioned that he had seen, about a twelvemonth past, a case similar to Dr Thomson's. He injected the warm water into the vagina for three successive times; next, he entered the tube into the os, and injected. Next day the tube was entered fairly into the cavity, and again the next. The membranes were then ruptured, and labour came on, but not till the liq. amnii had drained away for three days.

Dr Pattison related a case of what, he thought, might be termed "*acute anasarca*," in a child nine weeks old. The child, which had been apparently quite well previously, was suddenly seized with difficulty of breathing, lividity of the face, and œdema of hands and arms, and also of the feet and legs, and retaining the marks of the fingers for some time. Pulse 120. Urine scanty, and could not be collected so as to be examined. Warm baths were ordered, and powders, consisting of gamboge, calomel, and jalap, and a mixture of Spt. Ether. Nit. and Spir. Mendirer. The swelling gradually disappeared under the treatment, and, in the course of six days, the child was nearly convalescent.

UTERINE ASTHMA.

Dr Simpson reported upon uterine asthma, or asthma connected with menstruation. He made a few preliminary remarks on the observations of some German physiologists, with regard to the quantity of carbon excreted from the lungs during menstruation. Dr Simpson had seen several cases of asthma, where the spasmodic attacks recurred at each menstrual period. In some, the difficulty of breathing was very great indeed; some so much so, that, in one case in particular, the breathing could be heard from any part of the house; in other cases, where the catamenia were scanty, but present, the attacks were not so severe, the dyspnœa slight, but still recurring at the periods. Dr S. mentioned the particulars of several cases, and stated that the dyspnœa was completely relieved by chloroform. Dr S. wished the other members to assist him in investigating this subject.

Dr Cumming mentioned a case under his care at present, where the patient had suffered from asthma for ten months—the attacks being more severe at the menstrual periods, which were very irregular. Last week the discharge had returned, and at present the asthma is almost gone.

JAUNDICE AFTER DELIVERY.

Dr Simpson stated that he had lately seen, in Dundee, a case of jaundice, fatal three days after delivery. The jaundice came on suddenly, and was caused by great depression of mind. The person died comatose.

Dr Carmichael said that he had seen a similar case many years ago, where the patient had been much grieved. Dr C. saw her seven hours after delivery; she was then comatose, and died in the course of thirty hours (thirty-six after delivery.)

Dr Sidey said he had seen two cases of jaundice after delivery, but not sudden, and coming on with fever. Both cases recovered.

EDINBURGH CHAIR OF PRACTICE OF PHYSIC.

LETTER FROM PROFESSOR CHRISTISON.

To the Editor of the Edinburgh Medical Journal.

EDINBURGH, *Dec.* 24, 1855.

DEAR SIR,—Will you allow me the opportunity of correcting a mis-statement which appeared in your *Journal* for November, on the authority of Dr John

Renton. That gentleman was reported, in our Edinburgh newspapers, to have said with a sneer, on occasion of the late election in the Town-Council of a Professor to fill the vacant Chair of Practice of Physic in our University:—"*There is every reason to believe, if the Council had offered the Chair to the present occupant of the Materia Medica Chair, he would have accepted the honour.*" So long as this assertion was confined to the ephemeral press, I had no desire to contradict it. But as it has been transferred into your pages (November, p. 473), I am unwilling that a statement which is unfounded should be thus rendered a matter of history. Your readers at a distance may be apt to suppose that a Doctor of Medicine and City Councillor must be good authority for such a fact. Unfortunately, this is by no means a matter of course. The real fact is, as Dr Renton might have learned with extremely little trouble, that, as soon as I was assured that the honour would in all probability be offered to me, I intimated to a member of Council, who first spoke to me of the wish of himself and others in my favour, that, with so little time for preparation before the commencement of the University session, I foresaw that my professional occupations would frequently render it quite impossible for me to prepare the lectures from day to day: that I thought, in that case, I should be more useful to the University in my present professorship; and that I begged him to stop all farther proceedings towards the proffered offer being made. There was no foundation, therefore, for Dr Renton's belief; and if he had listened, as he was bound to do, to what was said on the subject by the Lord Provost, he must have known that his belief was groundless.—I am, yours truly,

R. CHRISTISON.

TREATMENT OF SURGEONS ON BOARD WHALING-VESSELS.

To the Editor of the Edinburgh Medical Journal.

SIR,—A number of the gentlemen acting as surgeons on board whaling-ships, held a meeting last year in Davis Straits, on the subject of their grievances, and the notes made on that occasion have been put into my hands, with the request that I would make the circumstances known through your columns. The object in view is, that others may be warned of the treatment they may expect, and also that something may be done to compel the owners and captains of these vessels to improve the position and comfort of the surgeon.

The vessels I refer to are those which annually leave our northern ports, Peterhead, Aberdeen, Dundee, and Kirkcaldy, in all now about forty in number, to engage in the whale and seal trades in Davis Straits and the Greenland Sea, usually leaving in February or March, and returning usually in September or October. The law, I am informed, compels those with fifty men to carry a surgeon. The great majority of the "surgeons," however, are students; and we may reckon that from thirty to forty of our students are annually absent in this capacity during the spring and summer months.

The surgeon's usual pay is L.2, 10s. or L.3 a month, besides food. He is required to provide a case of instruments (L.2), and bed (L.4), besides suitable clothing. After a six months voyage, he is thus only about L.10 in pocket. The common sailors receive L.2 to L.3 a month, the steward L.3. An assistant-surgeon in the navy receives 8s. a day, or about L.12 a month.

It is unnecessary to enter into the details regarding their position and treatment on board. It is enough to say that they are not looked on as gentlemen, and, consequently, not treated as such, nor is the office one of respect. The captain, or skipper, as he is usually called, has, it appears, generally risen from before the mast, and "takes delight in showing his superiority over the educated surgeon." The steward regards him as a person whom he is not called on to serve; very naturally so, as the surgeon's pay, and consequent importance, is less than his own. Nor is he thought worthy of so comfortable a berth as might be procured. One gentleman complains that, in rainy weather, his blankets became saturated, and his bed a pool. The duties are varied, according to the skipper's commands and fancy. Serving out the grog, keeping account of the stores, cutting the skipper's tobacco, and cleaning his bear-skins; "to be the skipper's shadow, sad when he is sad, merry when he is merry;" or it may be to mount the stern-locker and sing. I had always before regarded as a joke the story of the surgeon being told to clean the captain's shoes. Study, it appears, is out of the question. To cut short the attempts at this, and prevent him using the cabin, skippers have fallen upon a variety of expedients, such as removing the top of the cabin skylight to freeze him out, stopping the funnel to smoke him out, etc., etc.

Of course there are exceptions; cases in which the skippers are kind in their way, and in which the surgeon is as comfortable as he can well be in such a situation; and it is right to mention, that I have spoken to several who said so, but still described it as "rough work." It is possible, also, that some of those who have gone out in this capacity, have not always upheld the dignity of the profession. A good deal, too, will depend on the position the surgeon chooses to assume and maintain. This, however, he can do only by directly resisting the captain's orders, and exposing himself to ill-feeling and annoyance during the voyage, as my students who tried this tell me they suffered. The above account, however, gives a correct idea of the treatment which is generally experienced.

But, there is another side of the question, which concerns the public, or, at least, the crews of these vessels,—the qualifications of those who act in the capacity of surgeon. The great majority, if not almost all, are students. Some who have left my class for this purpose, were senior students, well qualified for even a more important charge; but some were first-year students only. I am not aware what evidence of qualification is required, or whether any at all. No inquiries were ever made at me, although several students leave my class every year in this capacity. I do not allude to this as derogatory to any of the junior students who have engaged in this service, as we do not expect students to understand what they have not begun to study. The cases are generally not very serious. The list given me by an intelligent and well-informed student, who was out last season at Davis Straits, is,—phlegmonous erysipelas, 1; punctured wounds, several; lacerated wounds, several; case of two broken ribs; case of reducible hernia; case of bilious fever; a good many cases of each of the following—whitlows, boils, ulcers, dyspepsia, diarrhœa, constipation, catarrh. Sometimes, however, there are serious accidents. One of my former students had several cases of frostbite of the feet, after shipwreck by ice, and performed amputation. Whether the law requires, when there are fifty men, or over, a regularly qualified surgeon, or only some one with what is reckoned sufficient medical skill, I am not aware; but presuming the latter, the present system is, in many cases, little better than a mockery. A young student mentioned to me a few days ago, that he had been asked to go. I asked him if he knew anything about medicine or surgery. He said no; but showed me a little book, which he had been told to read on the voyage instead. The skipper is generally the party who engages the surgeon, while the owners pay him after the voyage. A raw inexperienced lad is thus most suitable for both; he costs the owners less money, and is more likely to be obedient and useful to the skipper.

The remedy which I propose is—

1. That the pay should be higher, at least double. The surgeon will not be treated with respect, as long as he receives the pay only of the common seaman. 2. That evidence should be required of sufficient acquaintance with pharmacy, surgery, and medicine. 3. That the surgeon should have a written agreement with the owners, stipulating that he is to be exempt from all but strictly professional duties; that he shall have a comfortable berth; and that he shall have the use of the cabin, at all times, for reading or other purposes.

I hope I shall not be misunderstood, as recommending any student to leave his classes for such a situation, even on the conditions above mentioned. My object in this letter is to warn those who might accept the situation, without understanding its nature, and to endeavour to improve the position of those who may in future serve in this capacity.—I am, etc.

John Struthers.

Surgeons' Hall, Edinburgh, Jan. 15, 1856.

VARIETIES.

Royal College of Surgeons, Edinburgh.—The first of a series of conversaziones was held on Friday evening, January 25th, in the rooms of the College, when an admirable lecture on the Cell-theory was delivered by Dr Sanders, conservator of the Museum. The attendance of members and strangers was large, and the reunions, for which we are indebted to the energy of the president, promise to be highly successful.

Buchan's Domestic Medicine.—The following colloquy regarding this work and its author, occurs in the Memoirs of James Montgomery:—*Montgomery:* "But Sheffield has been connected with medical literature, for Dr Buchan's 'Domestic Medicine' was written in this town, and under the very roof of our house; his shop was that occupied now by the Misses Gales in the Hartshed. Perhaps you may consider the honour of either local or personal association with such a man rather equivocal! I remember seeing the old gentleman, when I went first to London: he was of venerable aspect, neat in his dress, his hair tied behind with a large black ribbon, and a gold-headed cane in his hand, quite realizing my idea of an Esculapian dignitary."—*Everett:* "Did you ever speak to him?"—*Montgomery:* "No; he was quite out of my reach; but I looked upon him with respect as a man *who had published a book?*"—*Waterhouse:* "Buchan's book has had its day; and whatever may have been its merits, it has produced some mischievous effects. In one of the Scotch editions, there was an astounding misprint, in which a prescription, containing *one hundred ounces of laudanum,* instead of that number of *drops,* is recommended."—*Montgomery* (laughing): "Why, such a dose would be enough to poison a regiment of soldiers."

New Treatment for Itch.—M.M. Dussard and Pillon have announced that the painting of the whole body with chloruret of sulphur, dissolved in sulphuret of carbon, frequently cures the itch immediately, by killing the acari and their eggs. In some cases, a certain number of the insects have survived, or some eggs may not have been reached, and it is then necessary to repeat the operation; but the effect of the remedy is always marked, and, so to speak, instantaneous.—*Gaz. Hebdomadaire,* Oct. 26.

M. Teissier of Lyons recommends, in the *Bulletin General de Therapeutique,* October 1855, that special apartments (*salles d'aspiration*) should be set apart, in all our great hospitals, for the treatment of chronic diseases of the air-passages, by means of the inhalation of medicated air. In his opinion, the ordinary apparatus at present in use, present the vapours in too concentrated, and, therefore, in an irritating form, and thereby occasion cough, heat, and dryness of the throat, etc., and other inconveniences.

Observation.—One man walks through the world with his eyes open, and another with them shut; and upon this difference depends all the superiority of knowledge the one acquires over the other. I have known sailors, who had been in all quarters of the world, and could tell you nothing but the signs of the tippling-houses they frequented in different ports, and the price and quality of the liquor. On the other hand, a Franklin could not cross the Channel without making some observations useful to mankind. While many a vacant thoughtless youth is whirled throughout Europe without gaining a single idea worth crossing a street for, an observing eye and inquiring mind find matter of improvement and delight in every ramble in town or country.—*Dr Aiken.*

Morningside Asylum too good for the Insane.—A female pauper was brought before the Sheriff a short time since, at the instance of the Procurator Fiscal, charged with being a dangerous lunatic. On the Sheriff proceeding to grant warrant for her removal to Morningside Asylum, the party representing the parish liable for her support, objected that that institution was too good for her, whereupon his worship consigned her to a licenced madhouse. We presume the philanthropic agent of public charity had previously satisfied himself that in the private asylum to which his pauper was to be sent, she would meet with treatment commensurate with her deserts.

The Weather and the War.—M. Le Maout, the chemist, who acquired some celebrity at St Brienc, his residence, for his observations on the barometer as affected by a distant cannonade, states in the *Publicateur of St Brienc*, that he announced the cannonade and the assaults of Sebastopol from the changes effected in the mercury. He adds, that it takes an hour and forty minutes to receive the impression of the guns of Sebastopol on the barometer in France.

Colliery Accidents.—A recently published return of the colliery accidents in Northumberland and Durham, establishes the very gratifying fact of a gradual decrease since 1851. In that year, the total number of accidents was 160; in 1852, 155; 1853, 150; 1854, 127; and for the first six months of 1855, they amounted to 69.

Crime in California.—It appears from a tabular statement, published in one of the San Francisco papers, that during the five months from January to May, inclusive, of the present year, 199 persons were killed in the State, 2 were hung by the Sheriff according to law, 22 were hung by the mob under the "Lynch" judiciary, and 9 were convicted of murder. The victims of Lynch law are set down as a total of 24.

PUBLICATIONS RECEIVED.

A Practical Treatise on Diseases of the Testis, etc. By J. B. Curling, F.R.S. Second edition. 8vo. London, 1856.

Letters to a Young Physician just entering upon Practice. By James Jackson, M.D. Third edition. 12mo. Boston, 1855.

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Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*Reflections on the Results of Experience as to the Symptoms of Internal Inflammations, and the Effects of Blood-letting, during the last Forty Years.* By W. P. ALISON, M.D., Edin., D.C.L. Oxon., V.P.R.S.E., Emeritus Professor of Practice of Medicine, Edinburgh, etc.

DR BENNETT'S Introductory Lecture on the *Present State of the Theory and Practice of Medicine*, recently published, gives so instructive an outline of the extraordinary advances made during the present century in the different departments of these sciences, that I can have no doubt of its being generally read and reflected on; and I therefore observe with much regret, that on one point, of great and general practical importance, he has expressed an opinion distinctly opposed to that which I had formed, as I thought on pretty sure grounds,—and considered to be of such importance, that I took some pains to explain the grounds of it, in some of the last Clinical Lectures which I delivered, in 1850 and 1852, and which were published in this Journal. It is, however, in every such case, a satisfaction to have an opponent, on whose fairness and candour, and anxiety for the establishment of truth, perfect reliance may be placed; and it is this feeling, as well as a sense of the importance of the question being determined as quickly and decisively as possible, which prompts me to resume the subject of the grounds of the assertion which I then made,—that many of the symptoms, and particularly the constitutional fever, usually attending internal inflammations, resulting from cold, or from other causes independent of the application of morbific poisons, are liable to variation—in like manner, although not so rapidly nor so decidedly, as the epidemic diseases, in the course of time, and from causes not yet known; and that they have, in fact, undergone very considerable change since the early part of the present century; and that it is on this account that inflammations of the lungs, in particular, are treated with equal success, at present, with a much smaller loss of blood. Dr Bennett thinks that "The mortality from pneumonia has *diminished* since large bleedings have been abandoned," not because the disease has changed its type, but because the large bleeding was really never requisite, and was, besides, attended with a risk that was not then understood.

But the reason which he gives for this opinion, if admitted as sufficient, will carry us much farther. "Pneumonia," he says, "consists of an exudation into the vesicles and tissues of the lung, which coagulates and excludes the air. It is very doubtful whether a large bleeding from the arm can operate on the stagnant blood in the pulmonary capillaries; that it can directly affect the coagulated exudation, is impossible. But lowering the strength and vital power of the individual is directly opposed to the necessary vital changes, which the exudation must undergo, in order to be removed by cell-growth and disintegration."—*Bennett's Present State of the Theory and Practice of Medicine*, p. 19.

This applies to the fatal effects of almost all inflammatory diseases, because exudation of lymph is essential to almost all changes of structure, produced by inflammation, and leading, in so many different ways, to such effects.

If this be the true reason of a diminished mortality, the large bleedings must have been an essential part of the cause of the larger mortality, and even when apparently useful must have been really inert;—or, perhaps, only counteracted in their injurious effect by constitutional vigour, misunderstood by the practitioners; and the inference which I apprehend, that young men, studying the subject for the first time, will naturally draw from those expressions, occurring in a systematic review of pathological improvements recently effected, is, that we now possess pathological information sufficiently precise to entitle us to set aside the practical conclusions, touching the power of blood-letting over inflammation, which our predecessors had drawn from their observations of disease; and which they have attempted to establish as principles in Therapeutics; resting, for the most part, on a different kind of evidence from pathological doctrines, but at least equally entitled, in their opinion, to the consideration of the practitioner.

If such an inference be drawn, I am confident that it will be a very erroneous one, and should much fear that it may, on some occasions, be a very mischievous one; and, as my reasons for thinking so, which I thought I had stated pretty fully in the papers to which Dr Bennett has referred, have failed of convincing him, I take the liberty of offering some farther explanation here.

1. In asserting, as a general fact, that the mortality from Pneumonia has diminished, since the practice of large blood-letting has been comparatively abandoned, Dr B. has overlooked or set aside what I had stated of the fallacy of Statistics, as applied to this subject; and has assumed what may, no doubt, have been true in regard to the practice of various hospitals, but what, I am confident, cannot be proved, by any satisfactory evidence, as to the usual course and terminations of the disease among mankind.

It is quite true, as Dr B. has stated, that the danger of inflammation of the lungs depends mainly—although, as I shall presently show, by no means exclusively—on the exudation of lymph; but it is also true, as I formerly observed (and illustrated by reference to several cases in the wards, which were subjects of the lectures in 1850 and 1852), that we can now detect this exudation, in consequence of the improved methods of diagnosis, in cases where there is so little either of pain, or cough, or dyspnœa, or inflammatory fever, that we should not, in former times, before these methods of diagnosis were known, have given them the name of pneumonia, and therefore, any statistical views of the mortality from pneumonia could not possibly have included these. Most of those cases, being very partial affections of the lungs, soon got well, under proper regimen, rest, and shelter, just as many have done of late years under homœopathic treatment—often with the aid of stimulants in their advanced stage; some, I am convinced, were regarded in former times as fevers, of different denominations, and ran their course under the treatment thought advisable for the idiopathic fevers of the time and place;—some passed into, or supervened on chronic disease of various kinds, especially dropsies. But the greater number of the cases of pneumonia, thus overlooked, were attended with little or no immediate danger, and therefore we see in this previous defect of diagnosis a sufficient reason for the diminution, which is said to have occurred in the mortality of pneumonia, in all hospitals where the improved methods of diagnosis by auscultation and percussion have been adopted, —quite independent of any effects of change of practice. And in regard to any statistical information of the general mortality, of this or any other diseases requiring some minuteness of discrimination, in the *general* practice of this or any other country,—although, we may hope, that such information may be gradually obtained in future, by the operations of the recent Registration Acts, and the labours of Registrars in this and other countries,—I am quite sure that no information, on which any reliance can be placed, is to be gathered from such records in time past.

2. The pathological view above quoted, on which Dr B. proceeds, is at least equally fallacious. For although it is true that the exudation of decolorized lymph into the cells of the lungs, is the most characteristic indication of this disease, as we see it in the dead body; and that, by attending to the indications established by the labours of the illustrious Lænnec and his followers, and watching carefully the sounds of the chest, and the appearance of the sputa, we can now frequently detect that exudation even in its early stage,—yet in this or any other case of disease threatening organic lesion, but seen during life, it is not merely the mechanical change of position of many particles of the blood, but a *strictly vital* action—such as we trace up only to principles of physiology and pathology,—to which we have to apply a remedy. It is that modification of the vital powers to which the blood is subjected in this part of the circu-

lation through the lungs, which causes it first to stagnate in the blood-vessels, then to distend these greatly, then to undergo that change, still obscure but essentially important, whereby healthy blood becomes inflamed blood; and then, thus changed in its own constitution, to transude into and choke up the cellular texture of the lungs, with very various rapidity in different cases; and, although I willingly grant to Dr B. (as, indeed, it was always allowed), that after these changes have gone on to a certain extent, the case can no longer be benefitted by blood-letting, and may easily be injured by it,—because a certain degree of the *vis vitæ* is essential for the ulterior changes, by which the disease may still frequently be conducted to a favourable termination,—yet I maintain, most confidently, that we have no pathological information which entitles us to doubt that Blood-letting, employed in the *early* stage of the Inflammation,—when the stagnation, distension of the vessels, change of the blood, and exudation of the decolorized lymph, are only beginning,—may arrest, or greatly shorten, those local changes; and most materially diminish, both the amount of the local change of structure, and the danger of the general disease that is excited.

There being no such Pathological knowledge as enables us to cut short the question, as to the use of this or other remedies in inflammatory diseases, I maintain farther, that it is only by careful observation of the symptoms in individual cases, before, during, and after the blood-letting, that we can gather information sufficient to justify the establishment of a principle in Therapeutics, as to the power of this remedy; and still farther, that there is no principle in medicine, better established in this way *by experience*, or more important, than the power of blood-letting over this and other inflammatory diseases, as they have been seen in most ages of the world, *when used at that stage* of the disease, when the fever attending them is inflammatory, and when we may be assured that, over at least a great part of the inflamed organ, there is congestion, stagnation of blood, distension of vessels, commencing extravasation, and change of the constitution of the blood; but these last changes still partial, and only so far advanced, that the process of nature, by which they may be corrected, will require no great length of time, nor much expenditure of vital power.

But when I say, that it is only by careful observation of the effects of the remedy itself, in well-marked cases of such diseases, that we can form a just estimate of its power, I think it equally certain, that we cannot compare the usual course of any such disease, and judge of the usefulness of different remedies, as coming under our observation at this day, and as recorded by practical writers and teachers in former times, unless we have some means of assuring ourselves, that we understand one another as to the use of words. Accordingly, in lecturing on any such matters, when such comparisons are requisite, I have long been in the habit of warning students, that the Empirical meaning of the terms, by which diseased states were formerly distinguished,—referring only to such combinations and successions of symptoms as constituted the history of diseases,—and the pathological meaning attached to the same terms, within the last thirty or forty years,—since Morbid Anatomy, professing to make known to us the true nature of diseases, has been so much better understood,—are often widely different; and that the diagnosis by "physical signs," particularly in the way of auscultation and percussion, however important and satisfactory, as fixing the whole history of diseases,—being founded, for the most part, on changes of structure already effected,—is seldom unequivocally marked in individual cases, until they have become hopeless, at least so far as the organ furnishing them is concerned; and, therefore, has not the value, in suggesting practice, which might have been expected, and was long hoped for. In the days of Cullen and Gregory, it was by empirical signs only that pneumonia was recognised; and Cullen expressly said, that he placed no reliance on the diagnosis of inflammations of the different textures constituting the thoracic viscera;—indeed, in his time, the whole subject of variety of inflammation according to the textures affected, was very little understood. When they said that blood-letting was the only effectual remedy, they meant, as we now know, not that this was true of all cases where the inflammatory exudation into the lungs was taking place, but that it was true of those cases where that change was beginning or going on, attended with inflammatory fever,—with pain somewhere in the chest, cough and dyspnœa, and the inflammatory crust on the blood; and farther, they tell us, that the combination of symptoms, to which they gave the name, occurs rarely under the age of puberty, most generally between the ages of 45 and 60, and in persons of robust and full habit; and that it makes progress rapidly, so as to terminate, whether fatally or by resolution, most generally within the first week; and the danger they held to be denoted chiefly by the degree of the dyspnœa, increasing regularly for the first few days, often amounting to orthopnœa, with turgescence and flushing of the face, partial sweats, and, after some days, often an irregular pulse;—partly also they judged of the danger from the "violence of the pyrexia, including a full, frequent, strong, and hard pulse, at least in the early stages,"—and likewise by the "frequency and violence of the cough, aggravating the pain.[1] It was, we must remember, of cases bearing more or less resemblance to this general description, that they asserted that "the remedy chiefly to be depended on was bleeding at the arm, generally as large as the vigour of the patient would allow,"—often giving relief to the breathing while the blood was flowing; and if not, properly continued, "until the symptoms of a beginning syncope shall come on;"—seldom, however large, sufficient, unless repeated, and often requiring to be repeated in the same day and to the same quantity as before; the second and subsequent bleedings, indeed, often borne better than the first;—all this, however, applying to bleedings *within the first three days* of the disease, although, on *recurrence* of the urgent symptoms, the bleeding may be repeated at any period, at least within the first fortnight.

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[1] See Cullen's *Synopsis*, Art. Pneumonia, and First Lines, § 335-360.

I am fully convinced that this is an accurate description of the first combination and succession of symptoms attending Pneumonia, with or without pleurisy, as it has very often occurred, chiefly in adults previously healthy and often of full habit, exposed to its usual exciting causes; and if, in treating such cases within the first three days, we are to be deterred from the use of large blood-letting,—recommended by so many practical authors, as one of the most powerful remedies we have for any urgent disease,—merely by the considerations, that "it is very doubtful whether such a bleeding can operate on the stagnant blood in the capillaries," and "impossible that it can affect the coagulated exudation,"—and that, "lowering the vital power of the individual, is directly opposed to the necessary vital changes which the exudation must undergo, in order to be removed,"—we shall be trusting to a pathological view of a vital process, still very imperfectly known, in opposition to a therapeutical principle, founded, no doubt, on empirical observation only,—requiring, no doubt, as all powerful remedies do, an exercise of judgment of the practitioners applying it,—because it may easily do harm, by enfeebling, and at the same time rendering more irritable, all the vital actions involved in the disease, more than good, by restraining the amount of the exudation,—but, nevertheless, much more to be depended on, *as guiding practice in these circumstances*, than any principle in pathology. We may make the same objection to bleeding, even in the early stage, of any inflammatory disease; and we shall thus lose the opportunity of applying the most powerful remedy that we possess, in the circumstances, in which I believe, with Cullen and Gregory, and most other practical authors, that it is capable of acting the most beneficially.

Whatever the pathological explanation of the fact may be, that full and repeated Bleeding may usually be practised within the first few days of an internal inflammatory disease, resulting from the usual causes of inflammation, and independent of any specific poison, as defined (empirically) by Cullen, when the pulse is frequent and firm, and the symptoms those of the Synocha of Cullen (varying considerably, however, according to the part affected), combined with more or less of pain, and embarrassed function of that part,—and that this has been done usually with perfect safety, without any of the injurious effects to which Dr B. has alluded, with immediate relief to all the uneasy feelings of the patient, and almost equally rapid abatement of all the symptoms of his disease; and farther, that the convalescence after such bleeding, even when the patient has been previously very feeble —*e.g.*, a convalescent from fever—has often been rapid, as well as complete,—are principles as to which, I think, no one can doubt, who has witnessed some well-marked cases of the kind treated on that plan, in the early part of the present century. Certainly, no one can entertain any doubt about the matter, who has suffered such disease himself, and felt the effect of the remedy, as I did, before the age of 14; but when perfectly capable of observing and recollecting the sensations, not only of fever, flushing, cough, pain of head and side, but likewise of dyspnœa, "making rapid progress,"—not relieved by the usual regimen and medicines, but all gradually subsiding *under the flow* of three cupfulls of *sizy* blood, taken from the arm—fulfilling exactly the confident prognosis of Dr Gregory, that it would relieve me at the moment, but only for a time, and that I should probably lose as much again next day, which I accordingly did, and with such effect, that from that time the feeling, both of dyspnœa and of febrile irritation, entirely vanished; although the pain of side—as in most such cases—abated more gradually after blistering, etc., and is, to this day, easily reproduced, with such indications of imperfect expansion of the side, as to leave no doubt of an inflammatory exudation, at least on the pleura, having taken place.

There is no doubt that, in consequence chiefly of the greatly improved state of morbid anatomy, and of the study of auscultation, the changes which are going on in the lungs during such an attack of pneumonia are much better understood now than fifty years ago; and that the diagnosis, and history, and consequences, of the disease, have been greatly elucidated: but to show that no corresponding improvement in the treatment of individual cases can be depended on only from this source, it is sufficient to state two facts, of which I have satisfied myself by frequent observation,—*first*, that we may have the usual marks of inflammation *extending* through a part of the lungs, *i.e.*, crepitous râle, followed by bronchial sound, or suppression of the respiratory murmur, and increase of the vocal thrill, while the sputa are pneumonic—after full bleeding, where the patient's feelings have been relieved, and the pulse fallen, and all the febrile symptoms abated; and, *secondly*, that such extension of the marks of inflammation within the chest, if it goes along with continued improvement of the general symptoms, after full bleeding, is attended with no danger, and may be confidently expected to abate under careful regimen, without farther depletion; nay, that it may then go off satisfactorily under the use of stimuli, if apparently demanded by the state of the circulation and general strength. The first of these observations was made by Louis, who insisted on it strongly, as a proof that blood-letting has no such power over this disease as has been represented; but if we connect it with the second, I apprehend the proper inference to be, that the effect of blood-letting is not accurately described by saying that it always checks the extension of the inflammation, but rather that it *modifies its character;* and, partly in that way, partly by merely diminishing the quantity of blood from which the exudation is to proceed, renders that exuding lymph more liable to re-absorption, and facilitates the process by which part, at least, of the lung that has been condensed, may regain its cellular structure. Practically, I am confident that, while the stethoscopic symptoms are of great importance in fixing the diagnosis, and informing us as to the probable consequences and termination of pneumonic cases, it is still by the symptoms known to our predecessors,—by the state of the breathing, cough, and expectoration, the pulse, and other marks of the state of the circulation,—watching the duration, and marking the changes on these, that we are to judge of the time when blood-letting, and other means of depletion, are to be used, to be omitted, or to be exchanged for an improved diet, or even for stimulating remedies.

I have often expounded to students the importance of carefully watching the progress of the symptoms in a few cases, where they may have the opportunity of seeing inflammatory diseases treated in this manner in their early stage, in order that they may be duly impressed with the conviction, that while they have before them the indications of dangerous disease, they have also in their hands, as applicable to many cases of inflammation, in different parts, but seen in its early stages, a remedy of real power; the observation of the effects of which, in one case truly suited to it, will be just as satisfactory to them as the "superb case of pneumonia," carefully watched and recorded by the late Dr Jackson of America, was to him at Paris—the only case he had seen where all the characteristic symptoms of pneumonia existed, ran their course, and disappeared by the seventh day—but likewise the first he had seen, in which the treatment by full bleeding was begun within the first twenty-four hours. For example, there are cases, not uncommon if carefully watched, where we have the first symptoms of inflammation of the Brain in children, making rapid progress, so distinctly marked, that we can have no doubt of their nature, and may be confident that they are passing rapidly into the Acute Hydrocephalus of Whytt, Cullen, and Abercrombie, which, if it shall unequivocally declare itself, will be rapidly, and almost inevitably, fatal; and, in some of these, if we watch the effect of a full bleeding, at the right time, on all the most characteristic symptoms, I cannot conceive that we can miss the conclusion of our having, not merely modified, but practically arrested, the progress of the disease; even in circumstances where, so far as my observation has gone, I should say, that any thing else that could have been done would have been mere trifling. Take, for instance, a case, to which particular circumstances led me to pay particular attention—a boy, æt. 8, of rather delicate habit, and who had complained occasionally, for some weeks, of headache and disordered bowels, temporarily relieved by laxatives, calomel, antacids, and a careful regimen, but recurring, and attended with gradually increasing febrile symptoms, and *shooting* pain of head; impatience both of light and sound; pulse gradually rising to 108, distinctly sharp, and beginning to intermit, and then nausea and vomiting, not referable to any medicine taken, but gradually increasing, until it recurred every time that he sat up in bed, for nearly twenty-four hours; and a slight, but quite perceptible, squint showing itself. The full action of laxatives, and one application of leeches, as well as cold, to the head, having failed to make any impression on this course of things, he was bled at the arm (which, in such circumstances, and at that age, has often appeared to me distinctly preferable) to 12 ounces, and the blood was sizy. I do not know what farther evidence we could have had of the existence of such inflammation within the cranium as would infallibly, if let alone, have gone on, within a few days, to delirium, stupor, dilated pupil, slow pulse, succeeded by very frequent pulse, convulsions, and death, as in a brother of this boy, some years before;—and have left after it the usual appearances of hydrocephalus, dryness of the membranes on the surface of the brain, distension of the ventricles of the brain with serum, and some of the marks of inflammatory action (often, however, scrofulous), either on the membranes or substance of the brain. Instead of this, however, I am quite certain that, from the time of the bleeding at the arm, this boy *never once vomited*—that the intermission of his pulse was *never again observed*, nor did he again complain of lights or sounds. The pain of head, although less violent, continued in the evening of the same day, and twelve leeches were applied within eight hours after the bleeding, and from that time he never once complained of this symptom, nor admitted that he felt it; and *from this moment he recovered perfectly*, and much more rapidly than he had done from much slighter febrile attacks previously; neither has he suffered, from that time to this (now thirty years), any return of serious disease.

Now, here was a measure employed—twelve ounces of sizy blood taken from the arm, and twelve leeches applied, to a boy eight years old, which we cannot suppose to have taken no effect at all, on the disease with which he was affected at the time. If it took any effect at all, it was such, that all the symptoms vanished within twenty-four hours, most of them during the flow of the blood,—and have never recurred. That the disease was inflammatory, we know from the febrile symptoms and sizy blood; and if the inflammation was not in the brain or its membranes, where was it? I will say, farther, that there was here just such a combination and succession of symptoms as I have known *often* to abate equally under, or immediately after, the use of the same remedy; and I certainly never saw anything like that sudden change of these symptoms under the use of any other remedy. Indeed, I am pretty certain that I have never seen a case, where that particular combination of symptoms (shooting or *stounding* pain of head, impatience of light and sound, sometimes inflammation of the ear, frequent sharp pulse, beginning to intermit, nausea and vomiting on assuming the erect posture, and a distinct beginning of squint) has gone off, as here, instead of going on to coma and convulsions, where there had been no loss of blood. And although it is true that after stupor and convulsions, and even palsy, or blindness, have come on, apparently in the farther course of the same discase, farther loss of blood is generally useless—probably often injurious;—and that a few cases of recovery take place, even in those circumstances, under strong purgatives, blistering, and mercury; yet the number of these fortunate cases, that I have seen, is so small, as compared with the number, where the symptoms have seemed to me to be prevented from passing into that last stage of the disease, by the help of blood-letting, and such treatment as was here employed, that I should hold myself inexcusable if I were to be deterred from the use of these means, by the consideration that we do not understand how the blood-letting can act; either on the blood stagnating in the vessels, or on the effusions and exudations that are to be expected from them in such cases.

All this is quite in accordance with what was strongly stated by Dr Gregory during the last twelve or fifteen years of his life, as the result of his observation of the cases, as he believed, of incipient hydrocephalus, which he had treated on the footing of inflammation, although often of scrofulous character, of the brain and its membranes. Many of these cases were attended likewise by Dr Abercrombie, and some were published by him; and I may notice, in particular, one case, with the particulars of which I happened to be acquainted (Case 77, in Dr Abercrombie *On Diseases of the Brain*, *etc.*, p. 159), in which a girl, æt. 15, was treated for symptoms of this kind, passing, as I have repeatedly seen them, into a more chronic form, yet still abating under loss of blood, repeatedly recurring for about six months, in the course of which time I afterwards learnt, that she was seven times bled at the arm, twenty-two times leeched, and besides the use of purgative medicine in strong doses, as required for maintaining the action of the bowels, took mercury so as to affect her mouth, although gently, five distinct times,—and ultimately recovered perfectly.

Having watched cases thought to demand this kind of practice often, and kept in mind the warning of Dr Gregory, that such are the cases which may sometimes be lost by the unexpected or violent action of remedies, but, according to his observation, much more frequently lost, by the inflammation running its usual course, when they had at least a chance of recovery by the operation of remedies which he was afraid to try,—that, "being no casuist, he would not undertake to say whether the sin of omission or of commission is the greatest, but that he knew well which is the most frequent and the most pernicious;"—I do not give an opinion without full consideration, when I say, that I have no doubt this observation was strictly true of all inflammatory diseases, as *known to practitioners by such signs* as those of Cullen's description of pneumonia, and as they occurred in practice in the early part of the present century; and I may simply enumerate the forms of inflammatory disease, in which I am confident that I have seen such decisive effects from this remedy, generally or locally used, as, judging from other cases of the same diseases where it had been neglected, or used to a much more limited extent only, I believe that no other could have produced; and as this would have failed to produce also, unless fully and repeatedly practised.

Besides cases of pneumonia and pleurisy, I have known many of inflammation,—chiefly rheumatic, affecting one or both membranes of the Heart,—in which the result of blood-letting, often many times repeated, has been almost equally satisfactory,—in some, notwithstanding that the indications of a certain degree of obstruction to the circulation there remain to this day; having diminished rather than increased in the course of many years. But all cases of inflammation of the heart I have long considered, particularly since I read the observations of Dr Elliotson on that subject, to be in general better adapted for the local than the general bleeding; and often to be satisfactorily treated by repeated local bleedings, at that period of the disease, and in that state of the symptoms, when there can be no doubt of considerable exudation having taken place, and when a general bleeding, suddenly weakening the heart's action, might certainly cause great aggravation of the symptoms, and increase the immediate danger.

In one remarkable case of a young lady affected in two successive winters, first with acute rheumatism, and then with the usual symptoms of metastasis to the heart, followed by high delirium, and decided enlargement of heart,—all the symptoms, repeatedly abating during, and recurring after, the flow of the blood, finally subsided both times after many leechings; a slight bruit, with dulness on percussion only remaining. That lady has continued well nearly thirty years.

As to inflammation of the Mucous membrane of the air passages (comprehending cynanche as well as bronchitis), under their various names as well as real varieties, I believe we may make the general observation, that well-marked cases of the kind, independent of contagion, attended with inflammatory fever, and seen early, may often be effectually checked in their progress by one full bleeding, and other means of depletion, used in quick succession; sometimes bearing several well, if begun early; but that, as all these diseases must be expected to be very apt to pass, either into a form of acute disease, dependent on peculiar exudations already effected,—or into chronic disease, more or less complicated, and easily aggravated by any cause of debility,—individual cases of these inflammations can seldom afford opportunities for much repetition of loss of blood, with good effect.

In regard to inflammation within, or immediately adjoining, the Abdomen, I can say likewise, that when they have been seen within the first few days (the case of the peritonitis being that which makes progress the most rapidly), and when the blood-letting—general or local as the case was one to be expected to be acute or chronic in its progress, and repeated as frequently as the first symptoms, after abating, would recur,—has been aided by the most effective auxiliaries,—especially by full doses of opium, alternated with laxative enemata, or the mildest laxative medicines,—its effects have been at least as satisfactory as in any other cases that I have known.

I mean, not only that the patients have been immediately more or less relieved of their most distressing symptoms, and recovered,—most of them rapidly and completely,—but that they recovered from circumstances, as far as I could judge, exactly similar to those, in which either a less energetic treatment, or treatment adopted a day or two later, has been followed by death, and exhibited, on dissection, the usual inflammatory indications; or, if the full depletion failed, we have found, on dissection, such indications of previous organic disease as explained its failure. This applies, not only to cases of peritonitis (even to some, although only a few, of the cases of more malignant peritonitis from contagion), but also to some cases of an inflammatory form of dyspepsia, to many cases of inflammatory diarrhœa and dysentery (some of these last likewise epidemic, and some attended with the remittent form of fever, long noticed in children), also remarkably to cases of tuphlo-enteritis, or threatening of suppuration in the abdominal parietes. And besides all these, many cases recur to my mind of inflammation of joints, chiefly the knee-joint, corresponding exactly to Sir B. Brodie's description of inflammation of the Synovial membrane; and again, cases of inflammation of Veins, in different parts,—at the groin, causing symptoms of phlegmasia dolens,—along the arm after blood-letting,—attended with inflammatory fever, and sometimes with threatening of secondary inflammation of internal parts,—several of these occurring in convalescents from epidemic febrile diseases; likewise cases of Erysipelas, when epidemic, or of the diffuse inflammation of the cellular membrane, described by Dr Duncan,—chiefly during, but in the later stages of the epidemic of 1830,—in which there has been more than usual of febrile reaction, and full bleeding, sometimes at the arm, more frequently, in one form or another, over the affected parts themselves, has been followed by as rapid and complete improvement as I have seen described by any authors, and such as I have certainly never seen, in cases of a similar description, from any other treatment.

For example, even at a time when inflammation of veins was frequent and fatal, (the constitutional symptoms attending it, in the worst cases, being those of rapid depression, with incessant nausea and vomiting, benefited by no antiphlogistic treatment,) I recollect two cases, where the tenderness along the veins was more distinct, and the fever more inflammatory than usual, which were thus treated,—one by four applications of twelve leeches each, within twelve hours, one by six of fifteen each, within three days; and although both these were convalescents from fever, and in a feeble emaciated state at the time, they both recovered perfectly, and, as we judged, rapidly. Cases of Syphilitic, most generally primary Syphilitic Inflammation, with sudden exacerbation, I believe generally erysipelatous, obviously threatening rapid sloughing, have likewise repeatedly seemed to me to be rapidly and decidedly benefited by blood-letting and anodynes.

The cases that I remember to have seen, in which it was most certain that Mercury affecting the system, after full blood-letting, was an essential part of the treatment, have been cases of inflammation of the Periosteum and Pericranium, sometimes of specific character, but in constitutions previously healthy,—and cases of Iritis; and comparing these with cases treated by mercury alone, or with little preceding loss of blood, it has repeatedly appeared to me quite obvious, that the latter method was not only more tedious, but much less satisfactory, as regarded either the part affected or the injury to the constitution. And the cases of inflammation of the Conjunctiva, which I have seen (small as the organ affected is, and although that inflammation has always been specific), which have been most satisfactorily treated, have been where the patient has been previously healthy, and his fever was high, and which have been trusted to full and repeated general blood-letting; and comparing these cases with others even of less intense inflammation of that kind, where the remedy had not been used, or carried to a small extent, I could not doubt that in a very few days, but for the bleeding, sloughing of the cornea and irremediable blindness would have resulted.

Lastly, I have seen many cases where symptoms closely resembling, if not amounting to those of inflammation of different internal parts, chiefly of the brain or of the lungs, have gone along with Bright's disease of the Kidneys, and incipient Anasarca,—chiefly, by no means exclusively, in convalescents from scarlatina; and where these have been thought to admit of, and been treated by, full and repeated bleeding, followed by the usual laxatives and diuretics, the effects of those last remedies, and the restoration of the natural state of the urine, have appeared to me so satisfactory, in comparison with the cases where similar symptoms have been treated without blood-letting, as to enable us perfectly to understand why it should be laid down by Hoffman, and other of the older systematic authors, as one of the benefits to be looked for from blood-letting, that diuretics, as well as other medicines causing fluid discharges, often act much better after venesection than before it.

In reviewing all these forms of inflammatory disease, which have seemed to me to correspond to the descriptions of many of the older authors, both as to their symptoms and the power of blood-letting in controlling them, one fact has always appeared to me of peculiar importance, that when these symptoms were little complicated, and seen early, and in persons previously healthy, the more violent they were,—the more intense the constitutional reaction, and the more decided the change on the function of the part affected,—the more confidently we might depend on the effect of full blood-letting in relieving them, and the less apprehension we need have as to the result. It has always been in cases where the symptoms of inflammation have been uncertain and insidious in the beginning, or modified by previously existing constitutional disease, or complicated with organic local disease, that inflammatory diseases, even if seen within the first few days, have proved ultimately the most intractable; and, therefore, almost all the cases I can recollect, where blood-letting has been carried farther than usual, have been cases terminating favourably; and by far the greatest number of deaths, from inflammatory diseases, have been in cases where the diagnosis was comparatively doubtful, and, therefore, the quantity of blood taken has been comparatively small. This was likewise the result of Dr Gregory's experience. I will not say that the bleeding may not, in some, have been injurious, and part of the cause of death; but when I have thought there was good reason for suspecting this, it has very generally been, as far as I could judge, not because the bleeding was too large, for the patient or the disease, but because it came too late for the case;—having been practised, in the hope of improving the patient's chance of recovery, at that period of the inflammatory exudation, when, I presume, more was to be hoped for from the expectant, or even the stimulating practice, than from depletion. Now, if any diminution of mortality from such inflammations of late years, has been properly ascribed to the effect of abstaining from blood-letting, that diminution should have fallen chiefly on that class of cases where it was thought, in former times, that full bleeding was demanded—not on that class where it has always been held, that it must be practised cautiously and sparingly.

But while I can have no doubt, from such observations as these, that this is truly, as our predecessors have represented it, a *summum remedium in maximis morbis*,—in the cases and circumstances suited to it,—this consideration should only make us the more anxious to understand distinctly what the circumstances are, in which it is truly applicable; and it is in this view that I think it of great and practical importance to have the question decided, whether the concurrence of symptoms, described and insisted on by Cullen as characteristic of Pneumonia, and of that stage of it which demands full blood-letting, is now comparatively rare; and farther, whether inflammations in general, and those of the lungs in particular, are now often seen, quite independently of febrile contagion, attended almost from the first by fever of more or less typhoid character, both as regards the state of the circulation and of the nervous system (fièvre adynamique and ataxique), and are then conducted to a favourable termination, most frequently and satisfactorily by the same treatment which has been found suitable in the very common case of contagious Fever, complicated with bronchitis or pneumonia.

It will be observed, that Dr Cullen's description of Pneumonia, which I have quoted above, had certainly not been taken from hospital patients; and, from that circumstance alone, may be expected to differ considerably from the description given of the disease, particularly by late French authors. Thus, we have seen that the Pneumonia of Cullen is "rare under the age of puberty," most common between that of "45 and 60, and in persons of robust and full habit;" whereas the Pneumonia of the French authors is "plus commune aux deux extremes de la vie."—(*Grisolle Path. Int.*, T. I., p. 353), that the greatest number of cases of it are complicated with other diseases, which have produced previously "un mouvement febrile et un grand degré de faiblesse" (*Ib.* p. 354); or, as Lænnec expresses it, even as to pleurisy, "Les Pleuresies les plus graves sont celles des sujets les plus debiles, des cachectiques, des hommes affaiblis par des excés, par la syphilis, la goutte, le scorbut, le cancer, et surtout *par l'age.*"—(*Auscult. Mediate*, T. II., p. 148). These statements are equally accurate as that quoted from Cullen; but they refer to the disease as seen in the dissecting-rooms of the hospitals of Paris, and as known during life, chiefly in a stage too far advanced for fair antiphlogistic treatment, and chiefly by diagnostic marks, which Cullen admitted that he did not possess; whereas, his description was obviously taken from patients whom he had seen throughout their disease, and who were, at least, above the rank of hospital patients.

Accordingly, the rarity of the Pneumonia, as described by Cullen, in the hospital here, was long ago noticed by Dr Home, sen., (*Clinical Experiments*); and although I have seen some cases answering to his description, in this hospital, they have been so rare, particularly their early stages, that I have often remarked that I could show more examples of inflammatory diseases, chiefly of the chest, and of the effects of blood-letting on them, to a few dispensary pupils, in one forenoon, by visits to dispensary patients, than in a three months course of attendance on the clinical wards in the infirmary. The inadequacy of hospital inspection, in regard to inflammatory diseases, particularly of children, has been well stated by Dr West; and I perfectly agree with much that he says in the following passage, as applicable to Pneumonia, seen from the first, in children previously healthy, as compared with what he calls secondary Pneumonia:—"Many continental writers are greatly opposed to the abstraction of blood in cases of infantile Pneumonia, and some even assert that it invariably accelerates the patient's death. But this opinion has been formed by observation of their *secondary* Pneumonias, which are of such frequent occurrence in the childrens' hospital at Paris; and therapeutical conclusions, deduced from cases of so peculiar a nature as are there presented, cannot be framed into rules for the general guidance of our conduct. In the management of cases of idiopathic Pneumonia, occurring in previously healthy children, depletion is as important a remedy as in the adult, nor will the most energetic employment of any other antiphlogistic measures enable us safely to dispense with blood-letting. In a healthy child, two years old, a vein (if easily found) may be opened in the arm, and ℥iv. of blood allowed to flow, if faintness be not earlier produced, without our having any reason to apprehend that the plan adopted is too energetic. The immediate effect produced is greater than that which follows local depletion, and the quantity of blood abstracted is definite." "However great may have been the relief, following the first bleeding, it is not always permanent, and hence the child should be seen again in from six to eight hours, and if the symptoms appear to be returning, with anything of their former severity, depletion must be repeated—though then local blood-letting is to be preferred. It must never be forgotten that, in the child as in the adult, no subsequent treatment can make up for the inefficient treatment of the early stage of Pneumonia. If the first twenty-four hours be allowed to pass, while you are employing inadequate remedies, the lung, at first merely congested, will have become solid, and recovery, if it take place eventually, will be tardy, and perhaps imperfect.[1] On the other hand, cases that set in with the greatest severity, sometimes appear to be at once cut short by free depletion, the violent symptoms being arrested, and recovery going on afterwards uninterruptedly, almost without any other remedy." —(*Diseases of Children*, p. 202).

We have, then, an explanation of a certain number of cases of inflammation of lungs, or of other parts, occurring in hospital patients especially, without the symptoms characteristic of inflammatory fever, such as have been, I believe, very generally regarded as the usual and natural attendants of active inflammation;—by ascribing these to a previously enfeebled or diseased state of the system, preventing or modifying the febrile reaction which the local inflammation would naturally excite; even independently of any of the cases of specific inflammations resulting from morbific poisons, and attending the epidemic febrile diseases; and we can understand, therefore, how it should happen that, on minute examination of such cases, both during life and after death, they should often be referred to the heads of complications, or of secondary, or intercurrent, or latent inflammations; and why cases of this kind should occur most frequently in the practice of hospitals, where inflammations are seldom seen in their first stage, and are often seen in persons whose bodies are already the seat of very various disease; but without affording any reason for distrusting the emphatic warning, that when inflammation is uncomplicated, in its first stage, and attended with the inflammatory fever usually regarded as its natural effect, "blood-letting is the only effectual remedy, and it is *not safe to dispense with it.*"

But although the different considerations that have been stated, showing how different an idea is now generally formed, and must in all time coming be formed, of Inflammations affecting internal parts, since their whole pathological nature is better known,—from that which was usually formed of them, when they were known chiefly by their constitutional symptoms or effects,—yet what I wish particularly to observe is, that I am convinced the change which has taken place in the usual phenomena of inflammation, and the usual opinion of medical men as to the effect of blood-letting upon it, cannot be explained merely in this way; simply on this account, that so far as I have observed, and I believe according to the general opinion of practitioners in this country, the change has amounted to this—not merely that inflammation now *often occurs without such "febrile reaction"* as Cullen and other authors have described as demanding and bearing the full bleedings,—which might be explained by several of the considerations that I have mentioned,—but that it now *very seldom* occurs *with such symptoms;* and farther, that the constitutional affection attending it has very often more or less of the *true typhoid* character, even when we have good reason for setting aside the supposition of any epidemic influence or contagious poison having acted on the body. It must be admitted that continued and contagious fever, even when epidemic, is usually attended with bronchitis, and often with peri-pneumony, (although, I believe, very seldom with inflammation of the serous membranes, in the chest or elsewhere,) and that there is often a difficulty, especially in cases not seen from their commencement, in distinguishing such complex cases from pneumonia excited merely by cold, especially in constitutions injured by spirit-drinking and other excesses; and therefore it is, I believe, at all times to be expected that, in hospital and dispensary practice, some confusion of simple fevers and Pneumonia should occur. I have never taken charge of the Clinical wards for three months, without seeing cases sent in by medical men as fever, which appeared, on more minute examination, to be properly regarded as Pneumonia—often as Pneumonia complicated with *Delirium Tremens.* I have seen several cases confirming the observation of some French pathologists, that such peculiarity of constitutional fever goes especially along with inflammation of the *upper* lobe of the lung. But of late years, the general result of my observation has been, that hardly any cases of Pneumonia, with regular inflammatory fever, show themselves; although there are many of febrile diseases to which, on due consideration, we cannot give any other name than Pneumonia. If we see a case of well-marked febrile symptoms along with pneumonic, succeeding to the usual occasional causes of inflammation, and find, on inquiry, that there is no ground for suspecting the application of contagion, and if we have neither the intense heat of skin, nor the peculiar eruption on the skin, nor the deafness, early subsultus tendinum, delirium, or tendency to coma,—which are the most characteristic symptoms of idiopathic fever,—I believe we may generally infer, that the disease is Pneumonia only; but in such cases, for many years past, it has been common to observe,—although there may be no subsequent reason to suspect contagion, and although the disease has not the regular course of Typhus,—yet that the symptoms of enfeebled circulation, the softness of the pulse, and its easy depression by depletion, or even by taking the erect posture,—the tremors and feebleness of voluntary muscular motion approaching to subsultus, and indifference to surrounding objects approaching to typhoid delirium and stupor,—the sickness and vomiting in some cases, dryness and feebleness of tongue and lips in others,—complete anorexia or depraved appetite, in all—assume gradually the character of typhoid fever rather than that of synocha; and accordingly, in such cases, if we think it right to take blood, either generally or locally (and I have often seen it, as I thought, distinctly useful in such, provided it was done early), we find that, although it may show the buffy coat, this has neither the thickness nor the tenacity of the firm buffy coat, so often seen in former days; that faintness is brought on by the loss of a quantity, small in comparison of what was formerly well borne, and that there is no such encouragement to a repetition of the bleeding, from the pulse speedily regaining its strength, or from the local symptoms *abating* and *quickly recurring*, as was formerly often noticed by Cullen and others; and as I and most practitioners with whom I have conversed think, we have often observed formerly. I believe, therefore, not only that we have fewer examples of violent Inflammation of the Lungs, but that the *usual* type of fever, attending such inflammations there as now exist, has materially changed.

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[1] This last position I consider the most doubtful of any here laid down. The effect of blood-letting on the degree of rapidity with which recovery follows it—even its effect on the constitution of a child—demands a consideration distinct from that which it produces on existing inflammatory disease.

In such circumstances, I think it will now be generally admitted, that the best practice is exactly similar to that which we should employ, if we regarded the case before us as Typhus, complicated with intercurrent Pneumonia;—*i.e.*, although small bleeding, chiefly local, and blistering—perhaps nauseating expectorants, on account of the local symptoms—may be useful, and the antiphlogistic regimen, so far as affects the nervous system, must be maintained, our business is to watch the state of the circulation and general typhoid fever; to abstain from strong depletion of any kind; and if there be even slight appearance of failure of the Vis Vitæ, to commence the use of Stimuli, which may be often observed to take good effect on the pulse and feelings of the patient; and if their effect is carefully watched, may sometimes be carried as far as in most cases of simple Typhus, with this reason for believing them to be useful, that the symptoms, by auscultation, and by the sputa, will likewise gradually improve under their use, *i.e.*, the bloody stain, even the "jus de pruneaux," disappear from the sputa, and the "râle crepitant de retour," and then the natural vesicular murmur be re-established, although somewhat enfeebled, as compared with that on the other side of the chest.

But as we know that there is a difference of opinion among medical men, as to the nature of the lessons to be learnt from watching such cases, it is still more important to observe, that on careful examination of such cases, we may be assured that the *mode of fatal termination* to be feared, as well as the kind of practice now recommended, goes to show, that the danger is different from that which Cullen and others had observed, and against which the practice recommended by them was directed. If the patient dies, it is not by asphyxia simply, as in disease confined to the lungs, but it is, in great measure, either by coma, without peculiar affection of the chest, or even by asthenia, without any urgent dyspnœa; in short, death takes place in the same way as in Typhus fever, and may in general be easily enough distinguished from the death of simply diseased lungs.

And this is farther attested by the observation, that although the inflammatory condensation of the lungs, in such cases, may be very certainly found on dissection, it is to a small extent only, in comparison with what has been often formerly observed, and cannot be supposed sufficient to explain death by asphyxia.

I mentioned, in my former paper, some remarkable examples of this kind, and have seen several others since—particularly two cases of Pleurisy, which were fatal without any urgent dyspnœa, although in men of middle life, apparently of good constitution and little bled. One of them only was examined after death; and although the pleuritic effusion was quite distinct and purulent, it amounted only to a few ounces, and the lung hardly appeared compressed by it. In this case death took place by sudden syncope, on the patient, who was apparently previously improving, merely rising from bed and crossing the room.

This observation is, I think, confirmed by a remark which I have often quoted from Lænnec, in his Chapter, *De la Peripneumonie*, —more important as guiding practice than many pages of his descriptions of morbid sounds or morbid appearances, original and important as these were:—" Il n'est pas rare de rencontrer des sujets chez lesquels un poumon entier et plus que la moitié du second sont tout à fait impermeables a l'air. Chez d'autres sujets, au contraire, *la peripneumonie determine la mort avant que l'engorgement ait envahi le quart* de l'organe pulmonaire. Ce fait," he adds, " est propre, ainsi que beaucoup d'autres à prouver que dans les alterations de nos organes, la mort est souvent due a *l'affaiblissement du principe de la vie*, ou, pour parler le langage d'Hippocrate, de ce qui imprime le mouvement, τα ὁρμοντα, beaucoup plus qu'a l'intensité, ou à l'etendue de l'affection locale."—*Traité de l'Auscultation*, T. I., p. 405.

Again, I believe we may assert with confidence, that the termination by gangrene has been much more frequent in various inflammations of internal parts, and particularly in the lungs, within the last forty years, than it was in the time of Cullen and Gregory. It is certain that neither of them was aware of the fact, that this change may be distinguished, I believe with certainty, by the smell of the breath.[1] When I have seen it, most generally the case has been complicated, either with an epidemic febrile disease, or with long continued injury to the lungs,—in one case, from a fragment of bone, in another, from the poison of sulphuric acid. But I have seen it likewise in cases which appeared to me simple Pneumonia, as I have seen distinct examples of gangrene, both of the liver and pancreas, in cases of inflammation of those organs of short duration, and where the local symptoms presented nothing unusual. If these cases had been treated by unusually large blood-letting, it might have been fairly argued that this form of fatal termination had been determined by the bleeding; but as it is certain that these cases, on account of the typhoid character, or the late period of the fever attending them, were not largely bled, one of them not at all, we cannot suppose this to have been the cause of this peculiarity of termination, which, therefore, as well as the death above described, from so partial hepatisation, I would ascribe, as Lænnec did, to defect of the vis vitæ; by which terms, however, we only express the fact, that vital action takes place more feebly, and is more easily depressed, than in the healthy state,—leaving the exact indications, and the immediate cause of that change, open for inquiry.

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[1] See Cullen's First Lines, sec. 360, vol. i., p. 230.

And, if it be admitted, as a legitimate consequence from what has been stated, that there is less of the symptoms of synocha, and more of indications of weakness, and of the typhoid symptoms of fever, in the constitutional effects of inflammation at present, than thirty or forty years ago, there is no question in medical science of more interest and importance than the cause of this difference of *medical constitution*. On this inquiry I do not presume to enter,—farther than merely to observe, that it is by no means certain that any *explanation* of the fact—*i.e.*, any reference of it to others, simpler and better understood—may ever show itself to the pathologist. The excitement of diseased action in the animal economy is a kind of phenomenon just as different from the progress of healthy action there, as this is different from the changes which the chemical elements of an animal body take on, when there is no *vis vitæ* to modify their agency on one another; the action of poisons, of all kinds, on the animal body, and of morbific poisons exciting epidemics among the rest, is one department of pathology, in which we can already trace up individual facts, however different from any others in nature, simply to the agency of principles or powers made known to us by their effects on living beings themselves; and one ultimate fact of this kind is, the variation of these powers,—at least of such of them as originate in the organized creation,—at different *times* and in different *places*. When we reflect on these facts, we cannot think it unlikely, that the result of the inquiry, which I have stated as so important, may be to show, either that all causes, capable of exciting diseased action in the animal economy, or more probably, that the liability to diseased actions in the different departments of the animal economy itself, are subject to variations,—which are made known to us only by the variation of such phenomena themselves; occurring merely in the natural course of *Time*,—an element affecting all vital phenomena, quite differently from its agency on inanimate nature; and the effects of which, on living beings, we must take as ultimate facts, to be carefully observed, arranged, and classified, but which we are not to expect to be resolved into any others, which the study of this department of the works of Providence presents.

ARTICLE II.—*A Clinical Investigation into the Diagnostic Value of the Cracked Pot Sound (Bruit de Pot Fêlé of Laennec).* By JOHN HUGHES BENNETT, M.D., F.R.S.E., Professor of the Institutes of Medicine and of Clinical Medicine in the University of Edinburgh.

IN the last January number of the Journal I directed attention to certain points in the diagnosis of phthisis pulmonalis, to which, it appeared to me, insufficient attention had hitherto been paid. In continuation of those remarks, I now propose to speak of that peculiar sound, which Laennec first likened to gently striking a cracked pot, and which, in his opinion, indicated the presence of a cavity, near the surface of the lung, in lean subjects with moveable ribs. It may be very clearly imitated by crossing the palms of both hands, so as to leave a hollow between them, and then striking the knuckles of the inferior hand against the knee, so as to produce a clinking sound. It is so peculiar as not easily to be mistaken, and can be produced in the living chest much more readily by the hammer and pleximeter than with the fingers. To this fact I directed attention in the Journal for December, 1854. I also pointed out in the Journal for last February, that a marked cracked pot sound had been produced in a case where there was no cavity, but, on the contrary, only a mass of indurated tissue, surrounded by healthy spongy lung. Since then I have paid great attention to the production of this sound, and found that it could be produced on percussion in chests affected with a variety of diseases, and presenting apparently different physical conditions. I have found it to be common in pneumonia, in pleurisy with effusion, and in several healthy chests. No doubt it is also present when cavities exist; but the general notion with regard to this sound being diagnostic of vomicæ, which has prevailed since the days of Laennec, requires modification. Further, it is highly important that our views with regard to it should, if possible, be rendered more exact.

To this end, the investigation of which I have now to give an account was undertaken last summer, on one hundred patients, who entered the clinical wards. This number might now be greatly extended, but I prefer limiting the inquiry to what was then accomplished, as no new fact has been since elicited. The one hundred patients were taken indiscriminately as they presented themselves, the choice being in no way governed by a desire to obtain a preponderance of chest diseases. One ward contained nothing but skin diseases, with very few pulmonary complications. Notwithstanding, on careful percussion of the chests with the hammer and pleximeter, the patients' mouth being open, it was found that the cracked pot sound was distinctly produced in twenty-nine out of these one hundred cases. The name, age, physical condition of the chest, and, indeed, the history of every one of these cases, is minutely recorded in the ward books. I carefully percussed each chest myself publicly with the clinical class, and the following is a short tabular account of each case, in drawing up which I have been greatly assisted by my resident clinical clerk, Dr Wilson Fox.

I have thought it of some importance to print this account, *in extenso*, in order to satisfy auscultators that every care was taken in the examinations, and to show them at a glance, under what great apparent variety of conditions the same sound was produced. I have marked the twenty-nine instances in which the cracked pot sound was audible with a * and a number. But it is very instructive to observe how similar was the physical condition of the chest in many cases, which elicited no cracked pot sound, to those which did do so. In short, the investigation, it appeared to me, would have been very incomplete, if the negative, as well as the positive cases, had not been recorded. By examining a number of cases indiscriminately also, I was led to the discovery that the cracked pot sound was frequently producible in the perfectly healthy adult chest. Skoda and others allude to the fact that it may be occasioned by percussing the thorax of young children, a statement I have confirmed. But it may also, under certain circumstances, be elicited in the healthy adult chest, as the table will show:—

No. of Case.	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
1.	Reekie,	M.	22.	*Chronic Pleurisy.*—The left side is dull on percussion anteriorly, posteriorly, and laterally. Respiration is totally abolished, and there is Œgophony. The right lung is resonant, and the respiration harsh and loud.	There has never been any cracked pot sound.
2.	Helan,	M.	22.	*Pleurisy.*—Over the right chest, anteriorly, there is remarkable loudness on percussion, but, posteriorly and laterally, commencing at a line drawn vertically half an inch outside the nipple, there is complete and sudden dulness, not altered by change of posture. On auscultation over clear portion, loud cooing murmur accompanies inspiration, and double friction at the margin of dulness. Over dull portion, absence of respiration with Bronchophony. On left side respiration everywhere puerile, with increased vocal resonance.	A remarkably loud cracked pot sound over whole anterior surface of right side, which, in six days, subsided. A slight cracked pot sound also under left clavicle, of short duration. * 1.

No. of Case.	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
3.	Dick,	M.	36.	*Phthisis.*—On percussion, dulness under both clavicles — most marked under left. Slight dulness at right base posteriorly. (Patient was admitted a month previously with pleurisy on this side.) Respiration under left clavicle harsh and blowing. Expiration greatly prolonged. Fine moist râle in right mammary region. Imperfect pectoriloquy exists under left clavicle. No râle.	Distinct cracked pot sound under left clavicle. * 2.
4.	Penman,	M.	35.	*Phthisis.*—On percussion, dulness under both clavicles — most marked under left. Dulness at left base posteriorly. Except under clavicle, percussion of right lung gives good resonance. Respiration under left clavicle harsh, with prolonged blowing expiration, and attended with large loose râle. Fine moist râle, audible at left base posteriorly, where respiration is weak and distant. Over whole of right lung respiration harsh and expiration prolonged. Pectoriloquy under left clavicle. Vocal resonance increased under right.	Cracked pot sound exists under both clavicles. * 3.
5.	Gaffney,	M.	14.	*Enlarged Spleen and Liver. Leucocythemia.*—Dulness over whole of left side, as high as 2d rib. Right side above 4th rib in front and 7th rib behind, is resonant. Respiration feeble on left side, exaggerated on right. No râle on either side.	None.
6.	Baur,	M.	6.	*Favus of Scalp.*—No dulness on percussion over any part of chest. Respiration healthy throughout. Chest walls very elastic.	Loud cracked pot sound can be elicited on both sides over the whole space between clavicle and nipple. * 4.
7.	Campbell,	M.	43.	*Phthisis, Capillary Bronchitis.*—Percussion shows slight general dulness over both lungs. Marked dulness under left clavicle. Fine moist râles audible	Cracked pot sound loud on left side, not on right. * 5.

No. of Case.	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
				over both lungs, in front and behind. Vocal resonance greatly increased under left clavicle, with fine moist râle. June 14. Loud gurgling under left clavicle, with pectoriloquy.	
8.	M‘Queir,	M.	19.	*Pneumonia.*—Percussion shows dulness of whole of lower two-thirds of right lung, both in front and behind. Under right clavicle, the percussion note is tympanitic in character. Left lung gives good percussion. Respiration on left side and under right clavicle exaggerated. Over dull part of left lung it is bronchial, and attended with fine crepitation. Vocal resonance over dull part bronchophonic, under right clavicle somewhat intensified.	Cracked pot sound can be elicited under right clavicle not under left. * 6. This sound continued after patient's recovery, when all physical signs had disappeared.
9.	Davidson,	M.	53.	*Right Pleuro Pneumonia.*—On percussion base of right lung is dull both anteriorly and posteriorly, at the apex there is resonance. Left lung resonant throughout. On auscultation there is bronchial breathing over base of right lung, both in front and behind. Both friction and fine crepitation audible in left axillary region and at angle of scapula. Vocal resonance increased posteriorly. Left lung healthy.	Cracked pot sound under both clavicles. * 7.
10.	Storer,	M.	50.	*Chronic Pneumonia of Left Apex.*—Percussion gives dulness over upper third of left lung both anteriorly and posteriorly. Right lung resonant throughout. Bronchial breathing with fine crepitation, heard over apex of left lung. Vocal resonance here bronchophonic. Respiration over right lung healthy.	Cracked pot sound elicited over left infra clavicular region, not in right. * 8.
11.	Russell,	F.	34.	*Morbus Cordis.*—On percussion there is dulness at left base posteriorly. Good resonance under both clavicles. Breathing harsh, with fine crepitation and	Loud cracked pot sound under left clavicle, faintly marked under right. * 9.

No. of Case.	Name.	Sex.	Age.	Diseases and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
				increased vocal resonance at left base posteriorly. Right side healthy.	
12.	Taylor,	F.	30.	*Phthisis.*—On percussion dulness exists at apices of both lungs, most marked at left. Respiration under both clavicles harsh, with prolonged expiration, attended at left apex, with a thin gurgling râle, and at night with sibilant and sonorous râles. Pectoriloquy at both apices.	Marked cracked pot sound under left clavicle. None under right. * 10. Disappeared before death.
13.	M'Kinna,	F.	34.	*Arrested Phthisis.* — On percussion resonance tolerably good at both apices and over both sides of chest. Respiration somewhat harsh at apices. No râles.	None.
14.	Cooke,	F.	20.	*Chronic Pneumonia, Recovering.* —Percussion gives slight dulness at base of right lung posteriorly. Resonance good over left lung. Respiration bronchial at base of right lung, and vocal resonance increased. Respiration healthy on left side. With the mouth shut the percussion note is clear.	Cracked pot sound exists under both clavicles. * 11.
15.	Keith,	F.	34.	*Morbus Cordis, Emphysema.*— On percussion resonance good over both lungs. Sibilant and sonorous râles heard at both bases posteriorly.	Cracked pot sound exists under right clavicle, not under left. * 12.
16.	Duncan,	F.	26.	*Chronic Pneumonia.*—On percussion there is dulness over whole of left side posteriorly, and under left clavicle as low as 4th rib. Bronchial breathing over whole of left side, with increased vocal resonance. Crepitation audible both anteriorly and posteriorly. Right side healthy.	Cracked pot sound exists under both clavicles. * 13.
17.	Boyle,	F.	30.	*Emphysema, Bronchitis.*—On percussion, resonance good on both sides. Sibilant and sonorous râles on both sides of chest.	None.
18.	Richmond,	F.	?	*Phthisis.*—Percussion gives slight comparative dulness under right	None.

No. of Case.	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
				clavicle, with slight harshness of inspiration, prolonged expiration, and increased vocal resonance. No râles. Left side healthy.	
19.	Roach,	M.	32.	*Phthisis.*—Dulness on percussion exists under both clavicles, most marked under left. Respiration harsh under right clavicle, with prolonged expiration. Under left, friction attends respiration ; expiration loud, prolonged, and blowing. Loud, dry, cavernous râle exists under right clavicle, not under left. Vocal resonance increased under right clavicle. Under left distinct pectoriloquy is heard.	Cracked pot sound exists under both clavicles, most marked under left. * 14.
20.	Stewart,	M.	56.	*Phthisis.*—On percussion dulness is found at both apices anteriorly. Harsh respiration at both apices. Increased vocal resonance at both apices, amounting to imperfect pectoriloquy on left side. Fine moist râle at right apex. Dulness, with a fine moist râle at both bases.	None.
21.	Currie,	M.	14.	*Pleurisy* (four weeks)—June 16th, On percussion, there is dulness on left side anteriorly as high as 2d rib, above this point the percussion tone is loud. Dulness on left side behind as high as spine of scapula. Percussion resonant over whole of right side. Respiration faintly audible over left side anteriorly, attended with fine friction from clavicle to nipple. Posteriorly respiration every where feeble, with friction below angle of scapula. On right side respiration puerile. Vocal resonance equal under both clavicles. June 23d.—The loud tone, on percussion under left clavicle, has disappeared. The other physical signs continue the same.	June 16th, Cracked pot sound under left clavicle, none under right. * 15. June 23d, No cracked pot sound can be elicited anywhere over chest.
22.	Aitken,	M.	46.	*Chronic Double Pleurisy, with Re-*	Cracked pot sound

No. of Case	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
				traction of Right Side. On percussion the whole of right back is dull, as high as spine of scapula. Right base anteriorly somewhat dull. Under clavicle clearer than elsewhere, but duller than on left side. On left side resonance good except at base posteriorly, where sound elicited is deficient in tone. Distant bronchial breathing over whole right side. Vocal resonance under right clavicle greatly increased. No œgophony. Respiration under left clavicle normal; here there is no increase of vocal resonance. At left scapular and infra mammary regions, friction may be heard.	under both clavicles—is more marked under left than under right. * 16.
23.	Smith,	M.	18.	*Pleurisy.*—June 2d. On percussion dulness on right side in front as high as 3 inches below clavicle. Above this, up to clavicle, there is a tympanitic note. Posteriorly dulness as high as infra spinous fossa. On left side percussion normal. On ausculation, respiration over tympanitic spot blowing, with fine friction below; this is inaudible in front. Posteriorly, respiration audible all over back, but very weak. No friction. Vocal resonance greatly increased under clavicle. Respiration natural, though exaggerated on right side.	Cracked pot sound can be elicited over tympanitic spot under right clavicle, not under left. * 17.
				July 7th. Dulness now reaches to apex of right lung both in front and behind.	Cracked pot sound has entirely disappeared, and continued so until his discharge, August 23d.
24.	Lumsden,	M.	25.	*Diabetes Mellitus.*—On percussion, immediately under both clavicles percussion sound healthy. On left side, for 2 inches below 2d rib there is dulness, but not absolute. On right side, percussion good throughout. Auscultation healthy. Respiration healthy	None.

No. of Case.	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
				in both lungs, except over dull spot on left side, where the breathing is faintly bronchial, and vocal resonance increased. No râle.	
25.	Phillips,	M.	41.	*Incipient Phthisis.*—On percussion, resonance somewhat less clear under right clavicle than under left. Right base posteriorly less resonant than left. On auscultation, respiration slightly harsh at right apex anteriorly, with a little fine moist râle inaudible at close of inspiration. Jerking respiration at right base. Left lung healthy.	None.
26.	Crawley,	F.	4½.	*Purpura.*—Percussion gives good resonance over whole of chest. Respiration normal.	Cracked pot sound exists under left clavicle, not under right. * 18.
27.	M'Bride,	F.	24.	*Phthisis.*—On percussion dulness exists under left clavicle. Under right there is unusually clear resonance. Sibilant and sonorous râles, and a coarse moist râle under left clavicle. Sibilant and sonorous râles under right clavicle.	None.
28.	Aiken,	F.	9.	*Fever, Pneumonia, Bronchitis.*—Percussion gives dulness over right lung both in front and behind, except immediately under the clavicle where it is clear. Over left lung percussion is good. Sonorous and a little moist râle over left lung. Both fine and large moist râle over right lung both in front and behind. Vocal resonance inaudible.	Cracked pot sound exists distinctly under right clavicle, not under left. * 19.
29.	Drummond,	M.	67.	*Morbus Cordis.*—June 27th, Percussion over right side of chest is dull both in front and behind. On left side it is resonant. On auscultation, respiration on right side harsh, with fine moist râle both in front and posteriorly, and considerable increase of vocal resonance. Respiration	June 27th, Cracked pot sound exists under both clavicles. * 20.

No. of Case.	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
				on left side normal. No râle. No increase of vocal resonance. July 18th, Percussion clear over both lungs. Some sibilant râles in both. No moist râles. No increase in vocal resonance.	July 18, Can be elicited under left clavicle, during inspiration, not under right. * 21.
30.	M'Kenzie,	M.	36.	*Phthisis.*—On percussion, dulness on right side in front as low as 4th rib. Whole of lung dull posteriorly. Left side clearer than right. Sonorous râle, and coarse moist râle both in front and behind. Vocal resonance increased, especially under right clavicle. Large moist râles on left side both anteriorly and posteriorly.	None.
31.	M'Queenie,	M.	25.	*Dyspepsia, Emphysema, Bronchitis.*—Loud resonance over whole of chest. Sonorous and sibilant râles on right side in front.	None.
32.	Ogilvie,	M.	18.	*Chronic Vomiting.* — Percussion gives slight dulness under right clavicle. None under left. On auscultation, under right clavicle, inspiration slightly harsh and jerking in rhythm. Expiration not prolonged. Vocal resonance greatly increased. No râle. Under left clavicle respiration normal.	Loud cracked pot under right clavicle, none under left. * 21.
33.	Anderson,	M.	31.	*Emphysema, Bronchitis.* — Clear resonance over chest. Sibilant and sonorous râles, with respiration on both sides.	None.
34.	Smith,	F.	19.	*Rheumatism.* — Healthy Lungs. Percussion gives good resonance over both. Respiration healthy over whole of chest.	Loud cracked pot note under left clavicle, none under right. On entering, a month ago, none was observable. * 22.
35.	Smith,	F.	19.	*Rheumatism.*—Healthy chest.	Faintly producible under right clavicle. * 22.

No. of Case.	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
36.	Mure,	M.	13.	*Fever.*—Percussion slightly dull at both bases posteriorly. Good resonance anteriorly. Sibilant râles at both bases.	None.
37.	Abernethy,	M.	41.	*Albuminuria.*—Percussion clear under both clavicles. Slight dulness and increase of vocal resonance at left base posteriorly. No râle.	Cracked pot sound under both clavicles. More marked under left than under right. * 24.
38.	Marshall,	M.	11.	*Favus of Scalp.*—Lungs healthy but chest wall very elastic.	Cracked pot sound can be elicited under both clavicles. * 25.
39.	Clarke,	M.	15.	*Impetigo of Face.*—Lungs healthy. Chest wall very elastic.	Present under both clavicles. * 26.
40.	M'Queen,	M.	57.	*Chronic Eczema.*—Lungs healthy. Percussion everywhere good. Respiration normal, and no increase of vocal resonance.	Marked cracked pot sound under left clavicle, none under right. * 27.
41.	Riddell,	F.	21.	*Diarrhœa.*—Lungs healthy. Percussion normal over whole of chest. Respiration healthy.	Cracked pot sound exists under left clavicle, not under right. * 28.
42.	Hogg,	F.	22.	*Morbus Cordis.*—Slight dulness on percussion over whole of right side. No râle.	None.
43.	Collins,	F.	21.	*Phthisis.*—On percussion, resonance deficient under both clavicles. Harsh inspiration under both, accompanied on right side by loose moist râle. Vocal resonance somewhat exaggerated, but equally so on both sides.	None.
44.	Macdonald,	F.	24.	*Phthisis.*—Dulness exists on percussion under both clavicles, more marked under right than under left. Loose moist râle under both clavicles, more under left than right. Vocal resonance intensified under both.	None.
45.	King,	F.	26.	*Morbus Cordis.*—Percussion normal under clavicles. Dulness with loose moist râle at both bases posteriorly.	None.

No. of Case.	Name.	Sex.	Age.	Disease and Physical Signs of Chest.	Cracked Pot Sound, with Observations.
46.	Bonts,	M.	18.	*Phthisis, Hemoptysis.*—On percussion, dulness under left clavicle. Whole left side somewhat duller than right both in front and behind. Harsh inspiration under left clavicle. Expiration almost inaudible. Vocal resonance and fremitus increased. No moist râles. Percussion and respiration on right side are normal.	Slight cracked pot sound under left clavicle, none under right. * 29.
47.	Peacock,	M.	46.	*Chronic Pleurisy* (12 weeks) *with Bulging of Right Side.*—Percussion dull on right side in front as high as 2d rib. Above this normal. Absolute dulness over whole of right back. Left side, percussion normal both in front and behind. Under right clavicle respiration is bronchial. Vocal resonance and fremitus are greatly increased here. Faint bronchial breathing audible over whole of right side. Rough friction heard at different parts. Left side, respiration exaggerated, otherwise normal.	None.
48.	to 100,			*Various Diseases.* — Chest healthy.	None.

In now endeavouring to analyse the above facts, it is important to observe, 1st, that the cracked pot sound was frequently absent in cases where our preconceived notions would have induced us to look for it. This was very observable in cases of phthisis, with all the signs of a cavity, as in Nos. 20, 27, 30, 43, and 44; and in two of these (Nos. 27, 30) the lungs were examined after death, and cavities were found, although of comparatively small extent. 2d, A second point of importance is that it was found to be frequently present in pulmonary diseases where there was no cavity, as in four cases of pleurisy, and several instances of pneumonia. 3d, It was shown to exist in several cases where neither symptoms or signs gave any evidence of disease of the lungs. 4th, It was frequently observed in the same individual to come and go, evidently in consequence of changed physical condition in the lungs during the progress of the case.

With regard to the twenty-nine cases in which cracked pot sound was present, they may be arranged as follows:—Pleurisy, 4; pneumonia, 5; pleuro-pneumonia, 1; phthisis, 6; other diseases with pulmonary complication, 5; pulmonary organs healthy, 8.

Pleurisy.—Of the four cases of pleurisy (Nos. 2, 21, 22, 23), three were acute, affecting one side only, and one chronic, affecting both sides. Of the acute, two were on the right side, and one on the left. In the three acute cases, there was in all of them, immediately under the clavicle of the affected side, unusual clearness on percussion, and the production of the cracked pot sound was limited to the resonant space. Where double pleurisy existed (No. 22), there was resonance under both clavicles, and the cracked pot sound was elicited on both sides. In another case of pleurisy (No. 1), in which the whole of the left side was dull, without resonance, on percussion anywhere, there was no cracked pot sound.

The analysis of these five cases of pleurisy therefore, in four of which the cracked pot sound was produced, whilst in one it was not, indicated, that it is only when this disease is partial—that is to say, where a small portion of resonant lung still remains—that the sound can be produced. So far as these cases, therefore, are concerned, it would seem that there must exist a portion of spongy lung—that is, a portion of air—in the chest, in order that the peculiar sound may be elicited. That this, however, is not the only condition seems indicated by a sixth case (No. 47), where there was dulness on the affected side everywhere posteriorly and anteriorly, except in the space above the second rib, where percussion was normal, and where no cracked pot sound could be produced. It is probable, therefore, that the spongy lung in pleurisy, forced upwards and compressed, must be in some peculiar state of tension in order that percussion over it produce the peculiar noise we are treating of. This seems proved by the fact that it is only in the four cases where the percussion note was unusually clear and tympanitic that cracked pot sound was caused, whilst in the case where the resonance was normal, and in the one where no resonance existed, it could not be produced. This conclusion is further strengthened by the fact that in No. 21, as soon as the loud tone on percussion under the left clavicle had disappeared, and in No. 23, as soon as dulness invaded the apex of the affected side, then the cracked pot sound could no longer be elicited.

Pneumonia.—Of the five cases of pneumonia, in which cracked pot sound was elicited (Nos. 8, 10, 14, 16, 28), two were acute, and three already chronic when the observations were made. Of the acute cases, in one (No. 8), the disease affected the lower two-thirds of the right lung, and percussion in the upper third was clear, where the cracked pot sound could be produced. In the other (No. 28), the disease affected the whole right lung, except the apex anteriorly; and the cracked pot sound was audible under the right clavicle. Of the chronic cases in one (No. 10), the disease was confined to the upper third of left lung, where cracked pot sound was produced. In the other two (Nos. 14, 16), the sign was audible under both clavicles, although, in the first, the disease was confined to the base of the right lung, and in the other it affected the greater portion of the left lung only.

From these facts, it seems evident that, although the same physical conditions may possibly exist in pneumonia as in pleurisy—namely, portions of spongy lung, rendered more or less tense by neighbouring condensation—there must be some other cause capable of producing the cracked pot sound. Hence, why should it exist over the healthy, as well as over the diseased pulmonary organs? Its occurrence over healthy lungs will be subsequently alluded to. Among the 100 cases examined, there were no others than those above mentioned, so that, in every unequivocal case of pneumonia which occurred, the cracked pot sound was elicited.

Pleuro-Pneumonia.—In the single case of this disease (No. 9), in which the symptoms and signs of pleurisy and pneumonia occurred together, the cracked pot sound could be elicited under both clavicles, although dulness on percussion was only present at the base of the right lung, whilst at the apex it was resonant. This case, therefore physically, resembles the two instances of chronic pneumonia just alluded to.

Phthisis Pulmonalis.—Among the 100 cases examined were 14 cases of phthisis, in 6 of which the cracked pot sound could be produced, whilst in 8 it could not. Of the 6 cases (Nos. 3, 4, 7, 12, 19, and 46), the cracked pot sound was heard only under the left clavicle in 4 (Nos. 3, 7, 12, 46); and under both clavicles in 2 (Nos. 4, 19). In all the cases, it is stated, that wherever the cracked pot sound could be produced, there was dulness on percussion, which was associated with more or less moist râle, or hoarse inspiration, with increased vocal resonance. The uniform dulness of percussion in phthisical cases contrasts remarkably with the equally uniform clearness in cases of pleurisy. It follows, that neither dulness nor clearness on percussion is necessary for the production of this peculiar sound.

Of the six cases of phthisis in which cracked pot sound could be produced, we had an opportunity of examining the body after death in four. Before proceeding to open the thorax, I endeavoured to produce the sound by percussing the dead chest, and after making an opening in the trachea, and keeping the edges of the incision apart with a pair of forceps, I succeeded in doing so in three out of the four cases (Nos. 4, 7, 19), but not always on both sides after death, when it had been heard on both sides during life. The following are the facts elicited by dissection of the lungs in the four cases referred to.

No. 4. *Penman.*—After opening the trachea, the cracked pot sound could be elicited over the cartilage of left fourth rib, but nowhere else. *Left Lung.*—The pleuræ everywhere firmly united by dense adhesions, but at the apex they were somewhat softer than elsewhere. In the substance of the lung, half an inch from the apex, was a cavity about five-eighths of an inch in its longest diameter, lined by a distinct membrane, and quite empty. The surrounding tissue considerably infiltrated with tubercle, having, however, a considerable amount of crepitant lung, so that it floated in water. Posteriorly and inferiorly the lung was highly congested and œdematous. Several small bronchi were obstructed by clots of blood. *Right Lung.*—Pleuræ, on this side adherent over upper third of lung. The whole of upper lobe infiltrated with tubercle, and congested; not so spongy as on the other side, and readily sank in water. In the upper third of the lobe were several small cavities. Lower lobes considerably congested, but free from tubercle. In this case the cracked pot sound could be produced, during life, on both sides.

No. 7. *Campbell.*—On opening the trachea, a loud cracked pot sound could be elicited under the left clavicle. *Left Lung.*—Pleuræ everywhere firmly adherent, especially at the apex, where the united pleuræ were thickened nearly half an inch. Immediately under the clavicle there was a cavity the size of a small orange, lined by a membrane, and traversed by bands of pulmonary substance. The rest of the upper lobe was densely infiltrated with tubercle, and here and there were cavities varying in size from a pea to a hazel nut. Throughout the lower lobe, tubercle, also infiltrated, but to a less amount. *Right Lung.* –Pleuræ not adherent. A few tubercles were scattered through the upper lobe, but to no great extent. A considerable mass of crude tubercle also was infiltrated into the tissue of the inferior lobe. In this case the cracked pot sound could be produced during life only on the left side.

No. 12. *Taylor.*—No cracked pot sound could be produced on the dead chest. *Left Lung*—Pleuræ everywhere firmly adherent, especially at the apex, where they were much thickened. In the upper lobe were several cavities, the largest occupying the apex, and capable of containing a large orange. It was lined by a distinct membrane, and bounded anteriorly and posteriorly by very thin walls, in a few places composed only of the thickened pleuræ. Superiorly it communicated with several smaller cavities, which varied in size from that of a pea to that of a large bean. The intervening pulmonary tissue was densely infiltrated with tubercle. Numerous grey granulations were scattered irregularly through the inferior lobe, and the whole presented here and there a blueish and black tint from pigmentary deposit. *Right Lung.*—The pleuræ were only adherent at the apex, where they were much thickened. The summit of the lung was dense, and indurated from numerous puckerings and cicatrices in its substance, associated with cretaceous concretions. At the extreme apex in front was a cavity capable of holding a large walnut, surrounded by indurated and almost cartilaginous-like walls, and lined by a distinct membrane. The two inferior lobes contained several masses of grey tubercle, and the anterior free margin was very emphysematous. In this case the cracked pot sound could only be produced during life on the left side.

No. 19. *Roach.*—The trachea being opened, a cracked pot sound was elicited under the clavicle on the left side, but not on the right. *Left Lung.*—Pleuræ everywhere firmly adherent. The upper third of the lung was converted into a large cavity, covered only superiorly by the thickened pleuræ. It was traversed in various directions by bands of indurated tissue, and communicated inferiorly with smaller cavities all filled with pus. The inferior portion of the lung was throughout infiltrated with tubercle in various stages of softening. With the exception of a small portion at the extreme base posteriorly, no part was spongy. *Right Lung*—Pleuræ universally adherent. At the apex was a cavity of irregular form, measuring one inch and a-half in its longest diameter. It communicated inferiorly with several smaller ones,—the intervening pulmonary substance, and the inferior lobes, everywhere infiltrated with tubercle, but not so dense or so much softened as on the other side. In this case the cracked pot sound could only be produced during life on the left side.

In all these cases, where a cracked pot sound was producible, it is to be remarked that a cavity was found after death, but in the case of Taylor (No 12), it happened that although a large cavity existed on the right side, no cracked pot sound was audible. Hence, although in phthisis where a cracked pot sound is produced, it is often found associated with a cavity, it follows that cavities may exist, without giving rise to this particular sign. The inquiry with regard to phthisis, however, cannot be considered to be complete, unless we attend to the eight cases of that disease, in which the sound could not be elicited.

Of the eight cases (Nos. 13, 18, 20, 25, 27, 30, 43, 44) of tubercular lungs in which no cracked pot sound could be produced, there were three, which presented the signs of softening at the apex (Nos. 20, 30, 44). In the two first, the lungs were examined after death with the following results:—

No. 20. *Stewart.*—No cracked pot sound could be elicited by percussion on the dead chest, after making an opening into the trachea. *Right lung.*—Tubercle very generally infiltrated throughout the whole of lung, having little spongy tissue. About an inch below the extreme apex was a cavity the size of a hazel-nut. *Left lung.*—Tubercles were scattered through the lung, dense at apex, but no cavity.

No. 30. *Mackenzie.*—The chest was not examined by percussion after death. *Right lung.*—At the extreme apex posteriorly, was a cavity the size of a small walnut, traversed by bands of indurated lung tissue, and lined by a distinct membrane. Tubercle was very extensively infiltrated through the inferior lobes, having however considerable portions of spongy tissue. *Left lung.*—This lung was more extensively affected with tubercle than the opposite one, and at the apex were three anfractuous cavities, the largest the size of a hen's egg.

It results from these facts, that cavities may exist in the lungs similar in position, size and character with those over which a cracked pot sound may be elicited on percussion, without in themselves furnishing all the conditions necessary for its production. In the last two cases in which the lungs were examined after death, it will be seen that their respective ages were 36 and 44, and the elasticity of the chest might have been diminished. Again, it must occasionally happen, that in such instances direct communication with the bronchial tubes may be temporarily cut off, or prevented, and hence the absence of the sound in question. On such a point, it is impossible to speak with certainty. But still the comparative frequency with which the sign may be elicited over tubercular cavities, renders it when present, in conjunction with other signs and symptoms of the disease, highly diagnostic of a cavern. It cannot be considered an infallible sign, however, even in phthisis, as it may be occasioned by mere indurated tubercular lung, as in the case I recorded in the Journal for February 1855, when the same physical conditions exist as in pneumonia at the apex.

Diseases with congested, collapsed or emphysematous pulmonary complications.—These were five in number (Nos. 11, 15, 29, 32, 37). Of these there were three with *morbus cordis*, a disease in which pulmonary lesions are frequently induced (Nos. 11, 15, 29). One case is called "Chronic Vomiting," from the leading distressing symptoms which accompanied it (No. 32), whilst the other was a case of Bright's disease. In these five cases, the cracked pot sound was produced under both clavicles in three (Nos. 11, 29, 37), and under the right clavicle only in two (Nos. 15, 32). In determining the physical signs present in these cases, it will be found that physically they were essentially the same, and presented similar exceptional facts, as occurred in other instances previously noticed. Thus in the three cases of morbus cordis, there was either dulness posteriorly and inferiorly, with resonance superiorly, or there were evidences of chronic bronchitis and emphysema. In the case of chronic vomiting, there was dulness under the right clavicle, where the cracked pot sound was elicited, and in the case of Bright's disease, percussion under both clavicles, was unusually clear, and the cracked pot sound was heard on both sides. These cases, therefore, only confirm the observations made in previous ones, namely, that the cracked pot sound may be produced over parts, which are either dull or clear on percussion, and that it is not pathognomonic of any special pulmonary lesion.

Diseases without pulmonary complication.—The importance of percussing every case indiscriminately, whether there was disease of the pulmonary organs or not is evident, from our having been led to the discovery, that in eight cases out of the hundred, in all which the lungs were perfectly healthy, cracked pot sound could be elicited. (Nos. 6, 26, 34, 35, 38, 39, 40, 41). Skoda and Walshe allude to the fact, that in young children, it can easily be produced. Indeed, I have found that if a child between the ages of three and six years, takes a deep inspiration, and holds its breath for a moment, we can then always elicit the sound. But the ages of the eight cases of which we are now speaking were as follows, viz.:—4½, 6, 11, 15, 19, 19, 21, and 57 years. Thus, seven out of the eight were not above 21 years, and four not above 15 years. In one man, however, nearly sixty, with a perfectly well formed chest, the sound could also be produced. It follows that if this sign be so common in healthy chests, and especially in young persons, who are so commonly the subjects of phthisis, we have at once an explanation of how it happens, that the cracked pot sound may be elicited, even on the side of the chest where no disease exists, and why it is often double when only one lung is affected. There can be little doubt that the frequency of this sign in healthy chests is connected with the elasticity of the thoracic walls. It would also appear, from its constancy during a deep inspiration in children, that the tensity of air within the chest, alluded to under the head of pleurisy, is also an important condition.

Such then are the apparently opposing and puzzling facts, to which a careful analysis of the 100 cases have led us. Let us now endeavour to ascertain, 1st, what theory of the production of the cracked pot sound is consistent with these facts, and 2d, what utility the production of this sound is likely to serve as a diagnostic sign of disease.

1*st. Theory of the Production of the Cracked Pot Sound.*

Any true theory of the production of the cracked pot sound must embrace all the known facts. It follows that, inasmuch as it may be produced in cases of pleurisy, pneumonia, and even in the healthy chest, the existence of a cavity, as supposed by Laennec, or of a mixture of air and fluid, as stated by Piorry, is not essential. According to Skoda, when percussion is made over a cavity, it is compressed at each stroke, and a portion of air suddenly driven out of it into the bronchial tubes; the hissing murmur, caused by the escaping air, is mixed up with the ordinary percussion-sound of cavities, and this compound noise represents the cracked pot sound. That part of the theory, however, which considers a cavity necessary, is shown by the preceding facts to be incorrect.

It has been noticed by various observers, especially by Graves, Stokes, Williams, Hudson, Walshe, and Markham in this country, and by Martinet, Andral, Piorry, Reger, Skoda, Winterich and others abroad, that a peculiar tympanitic tone, on percussion, is frequently produced in cases of pleurisy and pneumonia. An inquiry into the causes of these tympanitic and non-tympanitic sounds, or a review of the theories of Graves, Skoda, and others, is not my present object, and would lead me too far from the immediate subject of this investigation. Two excellent papers have recently been published regarding them by Markham[1] and Winterich.[2] The preceding facts, however, will show that the cracked pot sound is producible sometimes with the tympanitic and sometimes with the non-tympanitic percussion note, and it appears to me that, had attention been more carefully directed to the first sound instead of so exclusively to the latter phenomena, it would have probably been ascertained long since to have been as distinct and frequent as I have demonstrated it to be. Dr Markham observes of a case, in which there was an amphoric percussion sound, that on one occasion both he and Dr Sibson noticed distinctly the cracked pot sound, near the same spot. The *post-mortem* examination showed that the right lung was gorged with blood and serum, but everywhere still retaining some portion of air.

On carefully considering what are the necessary conditions for the production of this peculiar sound, comparing these with the facts detailed, and referring to the well-known modes of producing the sound artificially, 1st, with the two hands crossed, and, 2d, by percussing with the pleximeter on a bladder containing a small quantity of air, it appears to me they are, 1st, A certain amount of confined or tense air in the tissue of the lung; 2d, The sudden compression of this air by a solid body in its neighbourhood; 3d, Communication of this air with the external atmosphere.

1st. That a certain amount of air must be present is proved by its existence in all the twenty-nine instances in which the sound could be elicited. Thus in pleurisy encroaching on the lung from below upwards, percussion is clear under the clavicles. Where the entire thorax was dull, there was no cracked pot sound (No. 1). We have also previously alluded to the fact, that in one case (No. 21), as soon as the clearness of tone under the clavicle had disappeared, and, in another (No. 23), as soon as dulness invaded the apex of the affected side, the cracked pot sound could no longer be produced. The same observation applies to the cases of pneumonia, pleuro-pneumonia, congestion or collapse, proceeding from below upwards. On the other hand, where percussion is dull, as in pneumonia affecting the upper third of the lung, the confined air must exist below the diseased part, and be affected by the blow on percussion. In phthisis, with cavities, isolated or anfractuous, this condition is easily found. In healthy chests, especially in children, it may be easily demonstrated to occur, just when the chest is distended with air, as at the end of inspiration, thus affording the first essential condition.

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[1] *Monthly Journal*, June 1853.

[2] *Medizinischen Neuigkeiten*, 5 Jahrgang.

2d. The sudden compression of the confined or tense air seems also to be a necessary condition in the production of the sound. This, however, may be effected in various ways. The blow of the hammer was in all the twenty-nine cases the immediate cause, but this could not operate in compressing the air unless the walls of the thorax were elastic, as we have shown it to be in most of those in whom the chest was healthy; or, unless in cases of diseased chest, the blow communicated vibrations to indurations over the lung, which thereby compressed the air. In the former case the blow would act directly, in the latter, indirectly. Hence why in some lungs with elastic thoracic walls, during inspiration, it may be produced without disease, and why when elastic indurations occur, as in pleurisy, pneumonia, or phthisis, it may be elicited in disease. I have frequently observed, when percussing diseased chests, that the cracked pot sound diminishes in intensity after repeated percussions, I presume from the tensity of the air being diminished, by portions of it which have in this way been squeezed out of the space percussed.

3d. That there should be a communication between the air in the chest, and the external atmosphere, is proved by the invariable necessity of having the mouth and nostrils open before the cracked pot sound can be produced, and its immediate disappearance on shutting the mouth. After death, also, it can never be produced without previously making an opening in the trachea, or securing patency of the larynx. The necessity of this condition indeed serves, in my opinion, to explain how it happens that in several cases where cavities exist in the lung—that is to say, where confined portions of air are present, with elastic chests or indurated surrounding tissue—still the sound is not elicited. For it is easy to conceive that in such cases, the bronchi leading to the external atmosphere, or the cavities themselves, may at various times be filled with purulent secretion, mucus, blood, or other fluid, and that swelling of the bronchial lining membrane, or compression of the tube, may cut off the communication so necessary for the production of a peculiar note on percussion. Hence it appears to me why in phthisical cavities the sound comes and goes—why it may be present or absent before death—but above all why this is no more an invariable sign of a morbid state than any other with which we are acquainted.

Although these appear to me to be the conditions necessary for generating the sound, it is very difficult to determine the exact physical state at any one time necessary for its production. I believe, however, it will be found to reside in a mixture of solid and aeriform parts, the latter of which are capable of being compressed by the blow of percussion. Sometimes the former surround the latter, as in the case of a cavity. At others, the latter lie over, or upon the former, as in cases of pleurisy and dulness at the base; and occasionally the former lie upon or over the latter, as in pneumonia or infiltrated tubercle at the apex. In healthy chests a similar condition is produced by a full inspiration with elastic thoracic walls—as it is in a dead stomach rendered somewhat tense by air—in which last case, by percussing with a pleximeter, and bringing the two walls of the organ near each other, the cracked pot sound may be produced—a statement originally made by Skoda, and the correctness of which has frequently been confirmed by myself.

Diagnostic Value of the Cracked-Pot Sound.

A phenomenon which occurs in the general run of hospital cases, so frequently as twenty-nine in a hundred, and which was audible in twenty-one out of thirty-six pulmonary diseases in that hundred, must probably be considered a more common sign than any other with which we are acquainted. The character of the sound, also, is so peculiar and distinctive, is so easily produced when percussion is properly performed, and so little likely to be confounded with anything else, as to demand our careful attention. Yet it must be clear that it is in no degree pathognomonic, as it may be present in a variety of morbid states, and exists far more commonly in health, as we have shown, than is generally supposed. All these circumstances, however, are by no means opposed to its value in a diagnostic point of view. Indeed nothing, perhaps, has so much tended to throw discredit on the physical diagnosis of diseases of the chest, or been more mischievous in practice, than the attempts to connect particular diseases with particular signs, of which the notion that crepitation is diagnostic of pneumonia, and that dulness on percussion under the clavicle is diagnostic of phthisis, are striking examples. Hence, although, *per se*, the cracked pot sound is of little value—of no more, indeed, than any other individual sign; it is, when conjoined with other signs *and symptoms*, capable, in no small degree of assisting the physician in his diagnosis of thoracic diseases.

Dr Stokes noticed the existence of this sound in some cases of bronchitis in children, Dr Walshe has repeatedly observed it in infancy, and Dr Markham has observed it in the case of an engorged lung, containing a certain amount of air, but without a cavity. But we are not aware that any attempt has yet been made to indicate, from the results of careful inquiry, the probable uses of this sign in practical medicine. It is very probable that it may subsequently be discovered in diseased conditions not yet observed by myself or others; but, among several which occur to me as very probable ones unnoticed for the present, I venture to give the following, as the results to which the present inquiry has led me, viz. :—

1*st*. That the cracked pot sound is far more frequent than is generally believed.

2*d*. That for its production, careful percussion, with the mouth open, should be practised with the hammer and pleximeter.

3*d*. That it is not necessarily indicative of a cavity in the lungs, but may be present in various diseases of the chest, and even when the chest is perfectly sound.

4*th*. That, notwithstanding, in percussing the chest, we should never omit to do so when the mouth of the patient is open, as well as shut, with a view of determining whether the cracked pot sound exists or not.

5*th*. If present, it indicates either healthy lungs, with very elastic thoracic walls, or else increased density mingled with confined or compressed air in the thorax.

6*th*. The youth of the patient, resonance on percussion, puerile or healthy respiration, and the absence of pulmonary symptoms, will serve to diagnose the healthy character of the lungs.

7*th*. If the usual signs and symptoms of pleurisy, with dulness, be present with the cracked pot sound, it indicates that a portion of spongy lung is still performing its functions, and is not far from the thoracic walls.

8*th*. If there be dulness under the clavicle with the mouth shut, and cracked pot sound when the mouth is open, it indicates a mixture of indurated tissue, and of air—a circumstance which may occur in partial pneumonia, or in phthisis pulmonalis—probably under other circumstances, such as aneurismal, or other tumours, compressing the lung.

9*th*. Partial pneumonia can only be distinguished from limited tubercular deposition under such circumstances, by the general symptoms on the one hand, and by the absence of signs of a cavity on the other. If these fail, the diagnosis is most difficult.

10*th*. But if there be symptoms and signs of a tubercular cavity, then the cracked pot sound indicates that such cavity has a direct communication with the larger bronchi, and through it with the external atmosphere.

11*th*. As this is the most common condition of tubercular cavities, the occurrence of the sound in such cases, though far from infallible, is still highly diagnostic.

The practical value of these conclusions, and the modifications in and extension of them, which may result from further clinical investigation, I shall not now dwell upon. It may be well to observe, however, that I have recently had a case in the clinical wards of the Royal Infirmary, where, with all the symptoms and signs of advanced phthisis, indicating small cavities at both apices, there was a remarkably loud percussion note over the left mammary region, with distinct metallic tinkling immediately under the nipple, at the close both of inspiration and respiration. The sound resembled a double *tink, tink*. It was supposed that pneumo-thorax existed, yet a careful *post-mortem* examination showed no formation of air, as supposed by Graves, no lesion of the pleura whatever, and no cavity where the noise was audible, but small nodules of tubercles scattered through emphysematous pulmonary tissue, with a small cavity at each apex. Was the metallic tinkling propagated downwards from the cavity at the apex? This interesting question must for the present remain unanswered.

I have only, in conclusion, to express my conviction, that the remarkably characteristic cracked pot sound must be of greater importance than it has hitherto been considered, and that, if rightly interpreted, it is calculated to assist us, in an eminent degree, in rendering our diagnosis more complete and exact.

ARTICLE III.—*Histology of the Cholera Evacuations in Man and the Lower Animals.* By W. LAUDER LINDSAY, M.D., Perth.

(*Continued from page* 746.)

III. *Urine* was never obtained during the true collapse stage: it was first passed during the reaction stage, or sometimes not until fever had fairly set in. During these periods, it sometimes became necessary to remove it by the catheter. Whether voided naturally, or artificially drawn off, the urine first passed was generally turbid, acid, pale amber-coloured, devoid of odour, of specific gravity varying from 1010 to 1015, and invariably albuminous: it was, moreover, small in quantity, and contained a scanty flocculent mucous sediment. At subsequent stages of the disease, the density also continued comparatively low, and sometimes the quantity remained small: the albuminosity and mucous sediment gradually disappeared, and gave way to phosphates, urates, and other salts. The histological elements varied greatly from day to day, even in the same case, and especially during the fever and convalescence.

Mucus bands and granular corpuscles, similar to those occurring in the vomit and stools, were frequently present in the mucous sediment of the urine first passed, associated generally with a considerable amount of epithelium. The mucous bands were much more delicate and indistinct—less seldom striated and fibrillated—than in the stools or vomit, and very frequently entangled various crystalline matters. The granular corpuscles were also less frequent, and less distinct; their nature was also more frequently ambiguous, from their being associated with pus corpuscles: they were sometimes deeply tinged with various urine pigments.

Epithelium, in a multitude of transitionary forms, between the large globular or polygonal pavement cell, and the elongated conoid or fibriform one was generally present, in some shape or degree, in the earlier urine passed. It sometimes occurred in patches, of pentagonal or hexagonal scales, but more generally in the form of isolated scales, which were quite globular, very large, or slightly superior in size to pus corpuscles, or irregularly round, oval, or ellipsoid, presenting sometimes bulgings, occasionally caudate, irregularly square or angular, boat-shaped, crescent-shaped, fusiform, or fibroid. As in the vomit, these scales varied much in their degree of transparency, haziness, or granularity, being sometimes infiltrated with oleo-albuminous granules. The flocculent sediment of the first urine passed, sometimes consisted of little else than pavement epithelium, which had been thrown off abundantly from the surface of the urinary apparatus or passages. Globular epithelium, from the renal tubuli, was generally intermixed with pavement epithelium from the bladder, but to a proportionally small extent—not such, in my opinion, as to justify the idea that desquamation of the epithelial lining of the renal tubuli is a characteristic feature of cholera.

Frequently associated with epithelium, in the first urines, were fibrinous casts or cylinders; sometimes of considerable length, convolute or twisted, and transparent, or faintly striated; at other times in more or less straight fragments, dark or granular, or covered by, or entangling, granular corpuscles, oil globules, and molecular debris. They existed in four out of twelve cases. They gradually disappeared with the epithelium in the later urine, or that passed during fever and convalescence. The histological elements of the first urine, so far as they have been above described, therefore, resemble those of the urine in some cases of Bright's disease; and some authors regard the presence of the large amount of vesical pavement epithelium as the only point of histological diagnosis. The presence of mucus, epithelium, and pus, again cause a manifest similarity to many cases of vesical catarrh.

Of the crystalline ingredients of the urine, uric acid was present in two or three cases, chiefly in the earlier urine passed. In some specimens of the urine, it formed a sparkling crystalline scum; in a few, it covered the sides of the urine jar with a granular coating; in others, it occurred in the sediment entangled among mucus, or associated with other crystalline matters. Its crystalline form varied greatly; most frequently it assumed the shape of lozenges or cubes; sometimes it occurred in oblong bundles or stellate masses of acicular crystals, or as small delicate prisms. The size of the crystals also varied much, and the colour presented various shades of brownish yellow, red, and crimson. In one case, it appeared in the first urine evacuated on the third day of the disease, which was very mild, terminating in recovery without the intervention of a distinct fever stage. The urine was acid, albuminous, and of specific gravity 1020; containing, in addition, mucus, granular corpuscles, fibrinous casts, epithelium, urates, and dumb-bell oxalates. It occurred either in the scum, sediment, or on the sides of the jar, and in different crystalline forms, for several days. In another case, it appeared during the fever stage, and was coincident with the acmé of an exanthematous eruption on the body of the patient, accompanied by symptomatic fever, on the eighth day of a severe case. The urine was still slightly albuminous, and of sp. gr. 1010. It occurred also in the urine of the ninth day: on allowing this to stand for two days, the whole uric acid was found converted into urate of ammonia. On the 10th day uric acid also appeared in sparing quantity; on the 12th there was no trace; on the 14th it reappeared, along with pavement epithelium. Urate of ammonia was frequently present in its usual amorphous form. When the urine was concentrated by evaporation, however, it assumed the appearance of large irregularly globular masses, of a light or dark brown colour, having a centrifugally radiating crystalline texture, and herein resembling the fibrous concretions of iron pyrites, often found in clay ironstone. When of large size, these masses were very fragile, and hence were frequently found in fragments. In studying the forms of the various crystallizable or saline constituents of the urine, I was in the habit of allowing certain specimens to undergo spontaneous evaporation and decomposition, to limited degrees: other specimens were concentrated by heat, and various reagents applied. The result was, as might be expected, a great variety of crystalline forms—greatest in the case of the phosphates. The triple phosphate occurred frequently—chiefly in the forms mentioned when speaking of their presence in the stools; sometimes alternating with the urates. Oxalate of lime was present in rare cases, but, both in the dumb-bell and octahedral form, chiefly in the earlier urine. In one case, octahedral oxalates were present in the first urine, passed on the third day of the disease, which was mild, terminating speedily in recovery without the intervention of a specific febrile stage. The urine was acid, of sp. gr. 1022, and loaded with urates. The sediment contained, in addition, epithelium, fibrinous casts, pus, and exudation or compound granular corpuscles. In another case, dumb-bell oxalates appeared in the first urine, passed on the third day of the disease, which was very severe. The urine was turbid, acid, albuminous, and of sp. gr. 1015. The next urine passed by the patient, on the sixth day, was phosphatic; while that passed on the eighth day contained a uric acid sediment. Both patients were young females. In a third case—a male—dumb-bell oxalates were associated with uric acid, fibrinous casts, epithelium, and mucus, in the first urine, passed on the third day. These crystalline sediments, as we have seen, frequently alternated with each other, or suddenly appeared and disappeared. One day the urine might be high-coloured, containing beautiful sparkling crystals of uric acid; on another, it was perhaps turbid, from supersaturation with urates; on a third, it might contain a copious sediment of phosphates or pus; and, on a fourth, only a slight mucous sediment, entangling a few oxalates. Again, epithelium, casts and mucus, on the one hand, and phosphates and urates on the other, appeared sometimes to bear a relation to each other; where the one group was common, the other was rare. The former were met with, chiefly or only in the first specimens of urine passed; the latter, in the urine of fever and convalescence. As in other febrile diseases, there was sometimes observed a sudden and peculiar change in the histological characters of the urine—more particularly its crystallizable or saline constituents—coincident with a crisis, exacerbation, or remission, in the symptoms of the disease—especially during the typhoid or true fever stage. Such changes, however, were not regular or constant; or, in other words, did not bear a specific relation to the phenomena or phases of the disease. Hence, they were of little or no diagnostic value. They consisted most frequently in the appearance, reappearance, and disappearance of the urates, and of uric acid.

In a few exceptional cases, a beautiful Prussian-blue colouring matter was developed in the first urine passed, either after the addition of nitric acid, or simply on concentration by rapid evaporation. In one case the urine was acid, albuminous, of sp. gr. 1015, and contained casts, epithelium, mucus, oxalates, urates, uric acid, and compound granular bodies. Nitric acid, without the previous application of heat, caused the urine to assume a brownish-red colour, and also produced a brownish flocculent precipitate, which, on standing in a test tube, became granular, and of an earth-brown tint. The sides of the tube were at the same time coated sparingly with a greenish-blue granular deposit, which, under the microscope, appeared to consist wholly of bluish granular matter entangled among mucus fibrillæ. Hydrochloric acid produced a similar brownish discoloration and precipitate. Aqua potassæ developed a greenish colour; while aqua ammoniæ produced no change in colour. On standing for some time after the application of heat, and the addition of nitric acid, a yellowish-green colouring matter was found to have tinged certain granular corpuscles, and a cobalt blue pigment certain other corpuscles, along with epithelium scales, cotton tubes, and other debris, occurring in the urine sediment. Some corpuscles were dark-bluish-green and granular; others were light-green, and semi-transparent; while others were also non-granular, and of a fine cobalt blue. In the latter case, the corpuscles were frequently elongated at one extremity or caudate. Within certain limits, the intensity of the colouring matter increased in proportion to the period that had elapsed since the application of heat and nitric acid. It appeared to have a strong affinity for textile fabrics or other vegetable fibre; for I have seen it attached to linen fibres or cotton tubes, when it did not exhibit its presence elsewhere in the urine-scum, or sediment. On another occasion, in evaporating down several specimens of first urines, when the liquid had arrived at a certain stage of concentration, the scum assumed a deep Prussian-blue colour. These specimens were acid, albuminous, and of sp. gr. 1015 to 1020; nitric acid produced an orange-red or pink reaction, according as heat was previously applied or not. All the specimens were in stages of decomposition, having stood exposed to the air for some days after they were voided. Under the microscope, the scum, when cool, was found to consist chiefly of globular urates, all having a bluish tinge.[1] In all the above cases, the urine in which the discoloration or colouring matter was found, was that first passed after collapse; none were discovered in subsequent urines. Other observers have noticed a violet discoloration, followed by a deposit of a blue colouring matter, after the addition of nitric acid in the urine of convalescence also.[1]

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[1] "The development of a blue colouring matter in the urine of Cholera."—*Med. Times and Gazette*, May 12, 1855.

Associated with the epithelium, were sometimes found large roundish or oval cells resembling large epithelium scales, but having nucleolated nuclei, more distinct in outline, and usually darker and more granular. With these, were generally intermixed pus corpuscles, sometimes in great quantity,—the urine sediment being distinctly purulent. Both of these elements occurred in females, and their origin was probably leucorrhœal matter accidentally intermixed with the urine. Compound granular bodies, varying in size, granularity, and colour, frequently resembling the bodies described as "exudation corpuscles," by some authors, were also frequently present, associated sometimes with oily matter in the form of oil globules. Isolated vegetable cells, similar to those already described as occurring in the vomit and stools, likewise existed in a few cases; but they were evidently to be regarded as impurities or accidental admixtures.

The *post-mortem* contents of the bladder, or the urine drawn off by catheter after death, generally resembled that last evacuated prior to death, with the exception that it was always turbid, and contained a more or less copious flocculent sediment. This was made up chiefly of the disintegrated elements of the mucous lining of the urinary bladder and passages,—the result apparently of *post-mortem* or mechanical maceration, as in the analogous cases of the stomach and intestines. It frequently contained greatly elongated forms of epithelium, fusiform, fibroid, and conoidal; the latter sometimes presented two nuclei, the cell wall having a ventricose bulging opposite each. Caudate or horned forms of globular or pavement epithelium were also met with. Associated with epithelium and mucus, oil globules, and non-oleaginous hyaline globules, were also sometimes detected.

I have still a few remarks to make on the histological characters of the blood, and of some of the abdominal and thoracic viscera. In one case the white corpuscles of the blood appeared to be present in excess. I have found a similar leucocythemic condition in a considerable variety of constitutional affections, especially among the insane;[2] and, I believe it to be a state or symptom—certainly not an independent disease—of comparatively common occurrence. In a few cases, the red discs were hazy or granular. In one case they presented peculiar characters, some having the appearance of a delicate cell wall developed round a single or compound nucleus,—others having the cell wall developed in such a direction as to give the corpuscles caudate or elongated characters, while in others the form was still more irregular. Water rendered these appearances somewhat more distinct, but the subsequent addition of acetic acid made little change.[1] The red discs also sometimes showed a proneness to form rouleaux. Similar structural alterations, or exceptional conditions of the blood have been described by other observers as occurring in cholera. But they are rare—are not peculiar to cholera—have probably existed prior to the development of that disease, and are, therefore, unconnected in a causal relation therewith. Blood changes in cholera, where they exist, are more probably due simply to exosmose, or to pre-existing constitutional conditions, than to structural alterations or morbid conditions essentially related to the disease itself. Some prevalent views on the pathology of the blood in cholera, appear to me to be very limited or very erroneous. I have never seen the tarry viscid condition, formerly so frequently described. I have certainly found it sometimes dull in tint, dark in colour, grumous, and very fluid, showing no tendency to coagulation; but, on the other hand, it more frequently contained abundance of decolorized clots. Both conditions, according to my own limited experience, are equally common in other diseases. I have been able to discover no difference between the blood in cholera, and that in a multitude of affections where pulmonary obstructions of any kind have prevented its due or ordinary oxygenation. The lungs, in cholera, participate in the general hyperæmia of the internal viscera; and, as a consequence, œdema is not an unfrequent pulmonary lesion.

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[1] Paper by Mr Osborn on the same subject.—*Med. Times and Gazette*, March 31, 1855.

[2] "Histology of the Blood in the Insane."—*Journal of Psychological Medicine*, Jan. 1855.

The renal epithelium was sometimes infiltrated with oily globules and granules; but, I do not think that this is sufficient to warrant the conclusion at which some observers have arrived, that the kidneys are hence the seat of fatty degeneration. I think it probable, that had the disease, in some of these cases, progressed towards a favourable, instead of a fatal, termination, this infiltration of oily matter would gradually have disappeared; and that, where it was a permanent state of the epithelium, it probably depended on pre-existing organic disease of the kidney, which might have been aggravated, but was not originated or developed, by cholera. In some cases, I found the kidneys presenting the characters of various features or stages of Bright's disease.[2] The epithelium of the liver was also frequently, and that of the gall bladder and bronchi sometimes, infiltrated in a similar way with oily globules and granules; and, we have already seen that the epithelium thrown off from the surface of the gastro-intestinal mucous membrane, and of the urinary bladder and passages, frequently presented like appearances. The hepatic epithelium was sometimes hazy or granular, without exhibiting distinct oil globules. The gall bladder was usually coated with inspissated mucus, abounding in cylindrical epithelium of a very bright greenish-yellow colour, associated sometimes with oil globules and granules. It was usually distended with bile, which appeared healthy, or at least exhibited no marked departure from the normal state. This statement is quite opposed to generally recognised opinions on the conditions of the bile in cholera. I have elsewhere—and in some detail—stated the grounds upon which my own convictions are founded.[1] The very term *cholera* appears to me a misnomer, founded on mistaken views on the pathology of the disease. The presence of cylindrical epithelium in the gall bladder, has given rise to the opinion that here also there has been a vital desquamation of the epithelial lining; but, as in the analogous case of the intestines, the phenomenon is probably a *post-mortem* one. The bloody juice squeezed from a lung in a state of pneumonic consolidation, contained pus corpuscles, but no exudation or compound granular bodies. The cream-like contents of a tubercular cyst about the size of a sixpence situated in the apex of a lung, contained pus and exudation corpuscles, cylindrical ciliated epithelium, and the vague entities denominated by many observers, "Tubercle corpuscles," besides molecular debris—the result of the disintegration of pus.

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[1] *Edinburgh Monthly Medical Journal*, Aug. 1854, *loc. ol. cit.*

[2] Pathology of Cholera—" Clinical Notes on Cholera."—*Association Medical Journal*, May 12, 1854.

Before leaving this subject I would remark, that none of the above histological appearances are peculiar to cholera, but, on the contrary, most of them are common in a great variety of diseases. The intestinal evacuations are generally regarded as the most peculiar features of cholera: histologically they are not so, but closely resemble the stools of dysentery and diarrhœa. In ordinary physical characters the difference is generally great; sometimes, however, imperceptible. On the points of resemblance and distinction, however, I cannot here enter.[2] In connection with this subject, I have examined the stools in many cases of simple, acute and chronic diarrhœa, of the diarrhœa of phthisis and of chronic dysentery; and I have found the same albuminosity, the same histological elements, the same excess of salts and of water, or serum; the latter, however, never to the same extent. The stools of the premonitory diarrhœa, and of the reaction and fever stages, closely resembled those of common diarrhœa in ordinary physical, as well as histological and chemical characters. Between those of the collapse stage, the ricy stools, and the purely mucous discharges of dysentery, the resemblance was less close. In rare cases, however, the bloody stools bore an intimate resemblance to those of advanced dysentery. In the latter disease, the proportion of serum is greatly less, and the mucus is more cohesive, viscid, and stringy; when mechanically broken up, however, and agitated in water, a ricy fluid, exactly resembling the rice water discharges of cholera, was produced. The corpuscular element of the mucus in dysentery is generally larger, more distinct, less abundant, and more frequently showing nuclei and nucleoli under the influence of acetic acid; moreover, it is sometimes altogether absent, as it was in one case where the stool was of an apple-green colour and jelly-like. In the same disease, also, pus and blood corpuscles are of frequent occurrence, the reverse being the case in cholera.

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[1] *Association Med Journal*, March 10, 1854. *Ol. cit.*

[2] They will be found somewhat fully detailed in a paper on the "Histology of Mucoid Evacuations in Diarrhœa, Dysentery, and Cholera."—*Association Medical Journal*, March 16, 1855.

II. *Histology of the Cholera Evacuations, etc., in the Dog and Cat.*[1]

To exhibit at once the chief points of resemblance and distinction between the histological characters of the cholera evacuations in man and in the dog and cat, I shall here also shortly tabulate the principal appearances. But, in so doing, it is necessary to state that I had not the same facilities or opportunities for making separate microscopical and chemical examinations of the several evacuations in these animals as in man. The vomit and urine were generally so mixed up with the fæces that I was very seldom able to separate them for examination. The histology of the solids and fluids, after death, was much more fully and satisfactorily examined than that of the evacuations voided during life, the reverse being usually the case in the human subject. Hence the table can only be considered approximative, but it is probably sufficiently accurate to point out the close resemblance between the microscopical characters of the evacuations and the blood and viscera in the cholera of man, and in that of the animals which were the subjects of my experiments. To a certain extent, this resemblance was due to the mode of experiment, for instance, in regard to the nature of the food debris occurring in the stools, the animals having been fed on the evacuations of patients labouring under different stages of cholera, evacuations containing the elements of food which I have already detailed in speaking of the cholera vomit in man. Most of the elements therein mentioned occurred in the stools of the dogs, many of them having passed through their intestinal canal unaltered, others having undergone only further disintegration. The most common of these were the parenchymatous cells of the potato, portions of the epidermis of barley grains, starch corpuscles from the oat and potato, many of the forms of isolated vegetable cells which I have already spoken of as gonidic and annular bodies, with a few hairs and fragments of spirals.

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[1] For the circumstances under which these animals were affected with cholera, I must refer the reader to the *Edinburgh Medical and Surgical Journal*, "On the Communicability of Cholera to the Lower Animals," April and October 1854; *Association Medical Journal*, "Clinical Notes on Cholera," September 15 and December 15, 1854; and *Gazette hebdomadaire de Médicine et de Chirurgie* (Paris), November 24, 1854.

I. *Vomit.*
  - *a. Mucus*—fibrillated bands, with or without granular corpuscles.
  - *b. Granular corpuscles*—probably chiefly epithelial nuclei.
  - *c. Epithelium*—pavement, seldom perfect in form or transparency, more frequently variously elongated or otherwise altered, and hazy, dark, or granular.

II. *Stools.*
  - *a. Mucus*—fibrillated bands, with or without granular corpuscles.
  - *b. Granular corpuscles*—generally larger and more distinct than in man, probably from earlier period at which they were examined after evacuation or death.
  - *c. Debris of vegetable food*—Similar in kind to that mentioned under head of cholera vomit in man.
  - *d. Oily matter*—only in form of oil globules.
  - *e. Crystalline matters or salts*—phosphates and chloride of sodium, as in man, the former in a less variety of crystalline forms.
  - *f. Fungi*—mycelium of various kinds of mould, as in man.
  - *g. Ova of intestinal entozoa*—in various stages of development.
  - *h. Compound granular bodies*—variously coloured, most frequently greenish-yellow.
  - *i. Molecular matter*—similarly coloured.
  - *k. Impurities*—
    - 1. Licked from the surface of their own bodies—
      - Hairs.
    - 2. Licked from the floor—
      - Siliceous crystalline matter and other elements of dust.

III. *Urine.*
  - *a. Mucus.*
  - *b. Granular corpuscles.*
  - *c. Crystalline matters or salts*—
    - Phosphates.
    - Chlorides.
    - Urates.
  - *d. Oily matter*—only in form of oil globules.

The vomit, when distinguishable from the fæces, was a somewhat viscid, frothy matter, of a pale greenish-yellow tinge, consisting almost entirely of epithelium and granular corpuscles, both having a similar tinge, especially the latter. The epithelium was seldom rounded or broad, but more generally narrow and elongated—fusiform or navicular—sometimes very dark and granular. On the addition of acetic acid, a delicate cell wall became visible round most of the granular corpuscles, whose granularity was sometimes diminished; they never became compound, nor exhibited nuclei or nucleoli under the action of the acid.

During the earlier stages of the diarrhœa, produced by the nature of the animals' food, the stools were somewhat viscid, sometimes tarry in appearance, more generally of a brownish-green colour, containing much biliary pigment, a considerable amount of food debris, and frequently entozoon ova and phosphates, but little or no mucus. As cholera was developed, the stools became much more copious and watery, but still generally of a brownish-green tint. On minute inspection, however, they were found to abound in small flocculi of mucus. The disease proved fatal prior to the discharge of purely ricy or mucous matter, for the intestines were found, on *post-mortem* examination, lined or loaded with flocculent mucus, sometimes almost pure and colourless, or variously covered by or intermixed with greenish semi-fæculent matter. When the mucus of the intestines, freed from fæculent admixture, where it existed, was washed out by a stream of water, or was scraped from the surface of the mucous membrane, agitated with water, and the fluid allowed to stand, the mixture resulting could not be distinguished by the naked eye from the ricy stools of the collapse stage of human cholera. The flocculi, under the microscope, sometimes presented the appearance of delicately fibrillated bands of mucus, without being associated with or covered by granular corpuscles; the latter, however, were generally present, and varied from the size of pus corpuscles to about half that size. Under the action of acetic acid, alone or aided by boiling, some of these bodies became less granular, others were unaffected; some exhibited one or more nuclei, while around others a delicate cell wall was developed. They were frequently of a greenish-yellow tinge, as were sometimes also the mucus bands themselves. The mucus scraped from the surface of the stomach and intestines consisted sometimes solely of bands of mucus, so delicately striated as to be almost invisible; frequently isolated vegetable cells were adherent or intermixed in more or less abundance. Mucus from the stomach contained cylindrical and pavement epithelium, very dark and granular in one case; that from the œsophagus also contained granular epithelium and a number of isolated vegetable cells.

The urine could not be fully examined. It was generally turbid, having a whitish granulo-flocculent sediment. The vesical epithelium was only hazy; the renal epithelium was infiltrated with oil globules. The blood corpuscles appeared normal. Tracheal mucus contained normal cylindrical epithelium. Fluid squeezed from the lungs and bronchi contained epithelium, sometimes dark and granular, associated with oily granules, and a number of hyaline globules. The hepatic epithelium was slightly filled with oily granules and globules. The mucus of the gall-bladder contained cylindrical epithelium, isolated and in patches, besides a large number of granular corpuscles and oil globules, all of a very bright greenish-yellow colour. The epithelium of the interior of the vagina, uterus, and fallopian tubes appeared healthy.

PERTH, December 1855.

ARTICLE IV.—1. *Report of Cases treated in the Edinburgh Eye-Infirmary during the last Five Years.* By ROBERT HAMILTON, M.D., F.R.C.S.E., and BENJAMIN BELL, F.R.C.S.E.

CLASSIFICATION OF DISEASES.	DURING THE YEARS				
	1851.	1852.	1853.	1854.	1855.
Tumours of Eyelids,	12	5	7	8	8
Wounds, Inflammation, Abscess of do	6	9	10	13	14
Hordeolum,	5	7	5	6	4
Ophthalmia Tarsi, etc.,	55	30	45	18	63
Inversion of Eyelids,	2	1	...	1	3
Eversion of Eyelids,	1	...	3	...	1
Trichiasis,	3	...	2	2	4
Ptosis, affection of third nerve,	1	1	2	1	1
Epiphora,	4	6	6	5	6
Do. from Everted Puncta,	3	1	...	1	...
Inflammation of Lacrymal Sac, Fistula, etc.	1	9	10	13	16
Strabismus,	11	11	9	2	9
Protrusion of Eyeball,	...	...	...	3	2
Oscillation of Eyeball,	...	2	...	1	...
Wounds of Conjunctiva, foreign bodies under lids,	11	9	10	12	23
Pterygium, fatty tumours of Conjunctiva, etc.,	2	...	5	3	...
Xerophthalmia,	...	...	...	1	...
Inflammation of Conjunctiva, acute,	37	24	30	50	66
Do. do. chronic,	55	49	63	53	70
Do. Catarrhal,	9	4	1	1	1
Do. New-born Infants,	2	6	5	8	5
Do. Gonorrheal,	...	...	...	...	...
Do. Muco-purulent,	17	1	...	5	8
Do. Phlyctenular and Pustular,	25	22	35	34	37
Do. Strumous,	21	21	21	9	12
Do. Catarrho-rheumatic,	13	9	7	6	8
Granular Conjunctiva of Palpebrae,	11	4	6	5	8
Wounds of Cornea, "Fires," etc.,	26	19	25	28	21
Inflammatory affections of Cornea,	33	34	21	30	37
Abscess of Cornea,	3	2	6	5	11
Ulcers, vascular speck of Cornea,	22	26	31	24	23
Opacities of Cornea,	27	20	29	16	21
Warty growth of Cornea,	...	...	...	...	1
Staphyloma,	1	2	...	3	6
Hydrophthalmia,	...	...	...	1	1
Megalophthalmos,	...	...	...	...	1
Conical Cornea,	1	...	1	...	1
Prolapsus Iridis,	1	...	2	2	...
Detachment of Iris from ciliary body,	...	...	...	1	1
Wounds of Iris,	3	8	1	3	...
Fissure of Iris,	...	...	...	1	...
Inflammation of Iris,	1	4	...	4	...
Do. Strumous,	1	3	2	3	...
Do. Rheumatic,	8	1	6	1	8
Do. Syphilitic,	2	1	4	1	3
Do. Aqueous Membrane,	4	1	3	2	3

CLASSIFICATIONS OF DISEASES.	DURING THE YEARS				
	1851.	1852.	1853.	1854.	1855.
Synechia, anterior and posterior, Opacities of Capsule,	3	4	13	6	10
Cataract, idiopathic,	16	19	20	14	18
Do. traumatic,	6	3	3	5	4
Do. congenital,	1	2	2	1	1
Dislocation of Lens spontaneous,	3	2	...	1	...
Do. from injury,	...	...	...	1	1
Myopia,	3	...	4	2	4
Presbyopia,	...	1	1	4	...
Asthenopia,	11	6	7	9	7
Nyctalopia, or Day-blindness,	...	1	...	...	...
Hemaralopia, or Night-blindness,	...	...	...	...	1
Amaurosis, Glaucoma, Retinitis, etc.,	35	38	34	38	31
Cases not classified,	25	38	12	...	8
	545	473	504	472	594

These figures represent the number of patients, the more prominent disease alone being specified in each case: although the numbers might have been considerably augmented, by enumerating all the affections which were frequently associated in the same individual.

2. *Quarterly Report of Cases from October* 1*st to December* 31*st* 1855.

Tumours of Eyelids,	1
Wounds, Inflammation, Abscess of do.,	5
Ophthalmia Tarsi, etc.,	17
Inversion of Eyelids,	1
Trichiasis,	1
Ptosis, affection of Third Nerve,	1
Epiphora,	1
Inflammation of Lacrymal Sac, Fistula, etc.,	5
Strabismus,	2
Wounds of Conjunctiva, foreign bodies under Lids,	9
Inflammation of Conjunctiva, acute,	11
Do. Do. chronic,	9
Do. Do. New-born Infants,	1
Do. Do. Muco-purulent,	3
Do. Do. Phlyctenular and Pustular,	4
Do. Do. Strumous,	5
Do. Do. Catarrho-rheumatic,	2
Granular Conjunctiva of Palpebrae,	2
Wounds of Cornea, "Fires," etc.,	6
Inflammatory affections of Cornea,	1
Abscess of Cornea,	2
Ulcers, Vascular speck of Cornea,	8
Opacities of Cornea,	2
Conical Cornea,	1
Rheumatic Inflammation of Iris,	3
Synechia, Anterior and Posterior, Opacities of Capsule,	5
Cataract, Idiopathic,	5
Do. Traumatic,	1
Dislocation of Lens, from injury,	1
Asthenopia,	1
Amaurosis, Glaucoma, Retinitis,	8
	124

Inflammation of Lacrymal Sac.—The extreme nicety and precision with which structures are fitted for their peculiar office, is well illustrated by a trifling occurrence, of which we have seen more than one example lately,—the impaction of a detached eyelash in one of the lacrymal canals. Unless the apparatus for washing foreign bodies from the eye, and directing their course into the nose, were both admirably contrived and thoroughly efficient, the entrance of a slender eyelash, lengthwise, into the *punctum*, would be a much rarer occurrence than it really seems to be. When it takes place, it causes a good deal of irritation at the inner canthus, and a portion of the offending body may be seen to project, like a fine bristle, from the opening; for it has been arrested and prevented from passing out of view, by the sudden bend which the canal is known to make at a short distance from its orifice. It is probable, we think, that many cilia, as well as other small substances, gradually find their way into the lacrymal sac, cling to its lining membrane, become coated with earthy salts, and so lay the foundation of disease in the sac itself, or in the nasal canal. This seems a reasonable way of accounting for a large proportion of such complaints in young and healthy persons, especially, if, after opening the sac, our probe or style manifestly encounters, as is often the case, a firm gritty substance on its passage downwards. In the class of patients now referred to, there are no symptoms of necrosed or carious bone, no fœtid discharge, no sinking of the nose, and the result of an operation is usually successful. But other cases are met with, chiefly among poor, and ill-fed, and neglected children, in which the obstruction in the lacrymal passages, if not originating in, is at least kept up and aggravated by, constitutional infirmity. The pallid pasty countenance, the breadth and flattening betwixt the eyes, the fœtor from the nose, are all opposed to surgical interference, and seem to call, in the first instance at least, for an improved and generous diet, for cod-liver oil and quinine, with due attention to the skin and bowels.

It is proper, indeed, in all cases of inflamed lacrymal sac, to give heed to the past history and present health of the patient; and sometimes we have the satisfaction of finding, that the necessity for an operation may be obviated, by a judicious combination of local and general remedies. This result may be expected, when the affection has been evidently connected with an attack of conjunctival inflammation, and has been acute and rapid in its progress. Leeches over the inflamed sac, warm fomentations, and the subsequent use of a weak solution of nitrate of silver dropt into the corner of the eye, may cure the complaint in persons otherwise healthy. But the disease is apt, even in them, to become chronic, and then there is a constant liability to fresh exacerbations, on every slight exposure, and every change of temperature. When this is the state of matters, an operation is desirable.

We meet with another type of the complaint, in persons—principally females—of relaxed and feeble habit. In such cases, we may sometimes dispense with an operation, by the employment of tonic remedies and a bracing regimen, while we use astringents locally, and apply counter-irritation over the distended sac, by means of the tincture of iodine painted upon the skin.

With regard to the operation itself, we have nothing to say in addition to the clear and precise directions laid down in most of our systematic works on surgery. A recent writer[1] seems to be under a misapprehension, when he supposes that the common mode of introducing the knife,—in a direction downwards and backwards in the line of the lacrymal duct,—is intended by those who practise it, to make way for the probe or style through "densely organised material," obliterating the passage, and so creating a necessity for establishing a new canal. We doubt much if such views of the pathology of fistula lacrymalis are now in vogue. The real meaning of the procedure is this: to obtain an entrance for the probe into the sac, at a point as directly opposite as may be to the commencement of the nasal duct. The knife serves as a guide to the probe, and the latter is then applied to the seat of obstruction on the most advantageous terms. We have often found it quite possible to introduce a probe even by a fistulous opening, and to carry it through the stricture, as Mr Bickersteth recommends; but unless the orifice be favourably placed, there is a tendency to uncomfortable and awkward dragging of the skin. His proposal to make a simple puncture into the abscess or lacrymal sac, to introduce the style, guide it to the orifice of the canal, and with gentle pressure pass it along the tube, may be applicable to a certain proportion of cases; but when the disease has been of long standing, and the textures are much congested and thickened, the common method will be found to have a real and obvious superiority. In a very recent case this opinion was fully borne out. The patient was a healthy girl of sixteen, in whom an aggravated fistula had existed for two years. A very considerable abscess lay externally to the sac; and although a probe could be passed by a fistulous opening into the latter, it was found impossible to carry it downwards into the nose, without adopting the ordinary method of incision from above, and so carrying the probe in a straight course to the seat of obstruction. This last was very narrow, rough, gritty, and required a confident and firm use of the probe. There was a corresponding enlargement of the lacrymal sac; and its subsequent contraction seemed to be manifestly promoted, by extending the opening made for the style freely downwards and outwards.

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[1] On a Simple Method of performing the Operation for Fistula Lacrymalis. *Monthly Journal of Medicine*, April, 1855.

ARTICLE V.—*Medico-Legal Observations on Manual Strangulation and Death by External Violence, with Experiments and Illustrative Cases.* By ALEXANDER KEILLER, M.D., F.R.C.P., Lecturer on Midwifery, and formerly Lecturer on Medical Jurisprudence in the Medical School, Surgeons' Hall, Edinburgh.

(*Read before the Medico-Chirurgical Society.*)

(*Continued from p.* 534.)

THE principal object of the present communication being to record the results of the experiments which I was induced to perform, in connection with the important medico-legal case which has already been sufficiently referred to, I now proceed briefly to cite their special nature, and to state the conclusions which I think may be fairly drawn from them.

Of the following experiments preparations have been preserved, and are on the table, numbered in the order in which they will now be noticed. These illustrative preparations have been carefully dissected by my friend Mr Spasshatt, who kindly assisted me in the present investigation.

Post-mortem Experiments on the Human Larynx.

With the view of inducing the same extent of injury to the larynx as might naturally be expected to follow a fall on that organ from a considerable height, the following experiments were performed.

Experiment I. The body of a young man, aged 19, was placed horizontally upon its face, the head being made to hang over the end of a table, the front of the neck, immediately over the box of the larynx, being made to rest on the upper cross spar of a long-backed chair, two assistants then raised the trunk from the table, by each seizing a shoulder, while the head was lifted several feet above the level of, and at right angles to, the top of the chair back; at a given signal, the head and trunk were allowed to fall, so as to ensure a severe blow upon the larynx against the sharp upper edge of the chair, such as might possibly occur in any supposable casualty, as an accidental or other unusual violent fall upon any angular or other sharp-pointed body.

In order to ensure (if such be possible) the success of the experiment, it was repeated three times.

On subsequently removing the larnyx, it was found that no ossification of its cartilages had taken place, and that no injury whatever, either to the larynx or hyoid bone, had occurred, they being perfectly intact.

Experiment II. The body of a female, aged 60, was treated in the same manner, the only difference being that a block three inches wide and $\frac{3}{4}$ths of a foot in height, was substituted for the back of the chair. The block being placed on the table, immediately under the larynx (which was made to rest upon it before the experiment was proceeded with), care being in this case particularly taken, that the whole trunk was lifted high off the table, and the shape and size of the block ensured that the entire force of the fall might be spent upon the larynx. Subsequent examination of the larynx proved that very little ossification of the cartilages had taken place; and, as in the preceding experiment, they, as well as the hyoid bone, were uninjured.

Experiment III. The body of a male, aged 36, was placed across a strong table, having a large projecting bead around its circumference; this wooden bar or bead was rounded, about one inch in height, and the same in breadth, the body was so disposed on the table, and the larynx so placed across its raised edge, that the latter must have received the whole weight of the former in the performance of the experiment, which consisted in raising the body to a height (several feet) and allowing it to fall, with the addition of a considerable impetus, which was intentionally given, so as to ensure the larynx receiving the entire great force thus given. To make certain that this was properly accomplished, this experiment was also repeated thrice successively.

On removal, the cartilages of the larynx were found to be slightly ossified, but quite entire with the exception of a slight superficial slit, which seemed to have been accidentally done in the dissection. The hyoid bone was also entire.

In order to ascertain the effects of subjecting the front of the neck to violent pressure against a solid body, such as a chair or other piece of furniture (as was alleged in the indictment, to be one of the probable modes in which the injuries to the larynx were caused in the case in question), the following experiments were performed:—

Experiment IV. The end of a block of wood was so placed over the region of the larynx, in a male subject, aged 40, as to insure the whole of its cartilaginous structure being completely exposed to the pressure which was subsequently applied to the block. The block was then pressed with a steady force, applied directly backwards, so as to compress the larynx violently against the front of the spine; in doing so the larynx was apparently flattened upon the bodies of the cervical vertebræ, and was distinctly recognised to give way. On subsequently removing the larynx, it was found that both the lesser cornua of the thyroid cartilage were fractured near their base. Although considerably ossified, the lateral plates of both alæ were entire ; but a little to the left of the middle line, on the posterior surface of these cartilages, a deep fissure, not observed externally, was seen running up from the base to the mesial thyroid groove.

In this case the cricoid cartilages were almost wholly ossified, and yet entire. The hyoid bone was also entire.

Experiment V. The larynx of a female subject, aged 37, was subjected to the following experiment. The thumbs of both hands were placed over the front of the larynx, and by the utmost force that could be applied against the pomum Adami, the organ was violently pressed backwards toward the adjacent cervical vertebra. The force thus applied readily produced an extreme degree of laryngeal flattening, which was evidently the result of separation of the thyroid cartilages posteriorly by means of the spinal counter pressure. No sensation of fracture was felt during the application of the manual pressure. On subsequent examination of the cartilages, however, it was found that, as the last experiment, a partial fracture or fissure existed towards the mesial line, or posterior surface of the junction between the two alæ of the thyroid cartilage.

Experiment VI. On a male subject, aged 64 years, the same procedure was adopted in this case as in the former, viz., violent compression of the larynx and trachea with the hands, but not hearing nor feeling any snap or other apparent injury, and being desirous of ascertaining what amount of lesion would be produced by a severe blow over the region of the larynx, the parts were forcibly struck with a wooden mallet, weighing upwards of 1 lb. with the effect of causing a smart crack. On removing and examining the structures, it was found that the thyroid cartilage was partially ossified (although not to a very great extent), as also the cricoid posteriorly. A decided fracture was found in the middle line inferiorly, extending up to the groove between the two alæ. This fracture was visible on the inside or posterior surface of the mesial line, but not seen anteriorly on the external surface (a point, I think, of considerable importance to attend to, as I shall immediately show). In this case also, a fracture was discovered about half an inch from the posterior border of the left ala, involving both its superior and inferior borders, but not the intermediate portion of that wing. The cricoid was not injured. The left horn of the os hyoides was completely fractured from the body. The right superior cornu of the thyroid cartilage, was also partially separated from the right ala.

The remaining experiments which were performed may probably be considered the most important of the whole series, they being instituted for the purpose of ascertaining the exact character of the laryngeal lesions which are capable of being inflicted by ordinary throttling or manual strangulation.

Experiment VII. The neck of a powerful and well-developed man, aged 33, was subjected to *manual throttling*, apparently similar in kind and degree as would, in all probability, be applied in a case of homicidal strangulation.

The result to the larynx was found to be as follows:—

The thyroid cartilage was found to be somewhat ossified, and a fracture was seen on the left ala, a little to the left of the middle line, and running from above downwards and outwards, and extending on the anterior surface nearly to the base, whilst posteriorly it could not be discerned so far down. The cricoid cartilage was not ossified and was entire. The hyoid bone was also entire.

Experiment VIII. On the body of a robust man, aged 44, the following results of a similar application of forcible compression over the region of the larynx, were obtained.

In this case, the larynx and trachea were grasped and violently compressed by the fingers, by which their walls were felt to be brought almost into immediate contact, apparently without producing any obvious laryngeal fracture or other injury.

On applying the same amount of compression above the thyroid cartilage, a distant snap, as if of the hyoid bone, was heard.

On the parts being removed and carefully examined, there was found considerable ossification of the alæ of the thyroid cartilage. The cricoid, however, was still cartilaginous; a distinct fracture was perceived on the anterior and lower part of the right thyroid ala, extending from its lower border half way upwards and inwards, but not reaching to the chink or fissure, which superiorly separate the two alæ. On the left ala, in the line of junction of its ossified portion (which occupied its centre), with its cartilaginous structures, another but less extensive fracture was observed. The cricoid cartilage was found apparently intact, but, on subsequent slight compression, it gave way anteriorly in the centre. The left greater wing of the hyoid bone was completely disarticulated, which accounted for the snap referred to.

Experiment IX. On the attenuated body of a boy, aged 14 years, the following attempts were made to fracture the cartilages of the larynx, by *manual force*, without success.

The head was made to hang over the end of a table, so as to make the larynx protrude from the cervical vertebræ as much as possible, the whole soft structures in front of the neck, including the larynx, were grasped by the fingers of the right hand, and the utmost compression applied. No sensation of fracture was felt, the cartilages apparently readily yielding to the firmly applied pressure; both hands were then placed over the throat, and as much force as was possible, applied by the fingers to the entire box of the larynx, the flexible sides of which, however, yielded so freely to the applied force, as to bring the alæ in close contact, without producing any evidence of injury to the cartilaginous structures of the larynx.

At one point only was any sensation of giving way felt, which, on subsequent examination, proved to be the left horn of the hyoid bone, which was the only lesion found to be produced by the manual violence used.

On applying violent pressure to the cartilages of this larynx, after its removal from the body, slits or fissures could be readily enough produced, these splittings, as observed in several other instances, were found to be on the external surface.

Experiment X. On the body of a muscular male, aged 46, a similarly unsuccessful effort was made to fracture the larynx by manual force. In this case, however, the cause of the failure was found to arise from an opposite condition of the cartilages, for instead of being, like the other instances, entirely or partially cartilaginous, they were found, on examination, to be large, thick, and in a state of complete ossification, and consequently, therefore, required more manual or digital power to effect their laceration than I was capable of applying. In such an extreme degree of laryngeal ossification, an unusually powerful manual grasp or applied force would be essential to produce a fracture.

The general conclusions to be drawn from the foregoing experiments seem to be the following:—

1*st*, That *ordinary falls* on the human larynx, are apparently, not capable of producing fractures of its cartilage, and even *falls from a height with superadded force*, appear to be unlikely to do so.

2*d*, That *severe pressure applied from before backwards*, so as strongly to compress the larynx against the vertebral column; or, *violent blows inflicted over the larynx, by means of a heavy body*, are sufficient to cause fractures of the larynx. Fractures so produced, however, will be most discernible on the *internal* (or posterior) surface, and generally *in or near the mesial line.*

3*d*, *Violent compression* applied to the *sides of the larynx* (as in ordinary *manual throttling*, or *strangulation by grasping*), is, of all applied forces, the most likely to produce fractures of the alæ of the thyroid cartilage, or even of the cricoid cartilage; and fractures so produced are most perceptible, as well as most extensive on the *external* (or anterior) surface of the larynx.

By this *lateral* mode of applying force, the *hyoid bone* is also most readily broken.

4*th*, That the condition of the larynx in regard to the absence or presence of ossific deposit materially influences its liability to fracture from external violence. If altogether cartilaginous, partial slits or splittings may be produced. If partially ossified, fractures may be produced by a comparatively moderate degree of applied violence, and if extensively or entirely ossified, extreme violence will generally be required to produce laryngeal fracture.

The foregoing experiments performed on the dead body, sufficiently corroborate the *medical* opinions which were so justly entertained and expressed as to the *homicidal, and not accidental,* characters of the injuries discovered in the case which gave rise to the present inquiry, and the following singularly appropriate, though melancholy instance of death from compression of the larynx, which several years ago came under my immediate observation, will, I believe, be held as the reverse of corroborating the *legal* opinions, which were so confidently entertained and expressed as to the *accidental and not homicidal* character of the laryngeal injuries, opinions which, from the decided manner in which they were expressed by the Court, induced the jury to unhesitatingly act upon them, and to place no reliance on the clear medical testimony, which was tendered on the occasion.

Death from Accidental Laryngeal Compression.

In November 1850, at the request of Drs Weir and Smith, I made a *post-mortem* examination of the body of a female aged 50, who had died under the following painful circumstances:—

A marriage was being celebrated by a supper party of friends, and early in the evening Mrs —— retired, or was taken to her bedroom, and put to bed in a state of intoxication, she being much addicted to drinking. About an hour afterwards, she was discovered lying on the floor, in front of her bed, quite dead, and in the following most extraordinary position:—The body was on its front, the head and face resting on a sofa, the sharp front edge of which was supporting the neck, which exhibited an ecchymosed transverse depressed mark directly over the larynx.

It was supposed that she had rolled from the bed, pulling the clothes along with her, upon, or over the end of the sofa, which was close to the bedside, and considerably under its level; that, in falling towards the floor, the neck had caught the front of the sofa; and that, being in an unconscious state at the time, suffocation had speedily taken place from violent compression of the air passages.

The appearances, on dissection, sufficiently corroborated this view of the case.

The only external mark of violence or injury observed on the body, was the indentation or scar across the front of the neck. It extended to about two inches, and was situated immediately over the thyroid cartilage. It presented a dry, puckered, brown appearance, not unlike the effect of a recent burn, and was not continuous with, nor in any way resembling, the patches of lividity which were observed on the sides and posterior parts of the neck. The skin involved in the mark was slightly abraded, but its structure, when cut into, was free from ecchymosis, the effects of the pressure being entirely limited to its external surface.

On laying open the layrnx and trachea, no corresponding lesion was seen on the inner or mucous surface, and no fracture or other injury of the cartilages of the larynx was observed.

There was no protrusion of the tongue, nor froth in the mouth or air passages, neither was there any unusual enlargement or congestion of the papillæ of the base of the tongue, as often seen in death by asphyxia. The mucous membrane of the trachea and bronchii was, however, coated with bloody mucus, the latter giving exit to a considerable quantity of dark fluid blood, when compressed. The lungs were distended, and, when cut into, dark fluid blood issued from their texture. The heart was healthy, the right cavities empty, probably from the blood having escaped from the jugular veins, which were cut, and from which a large quantity of dark coloured blood issued, previous to the heart being examined. The liver was pale, large, and extremely friable. The stomach was distended with air, strongly impregnated with alcohol. It also contained a quantity of fluid and recently masticated beef, also strongly smelling of spirits.—A fibrous tumour was found imbedded in the posterior wall of the uterus.

From the history of the case, the peculiar position of the body when found, the anterior cervical mark, and the *post-mortem* appearances of the air passages and lungs, there can be little doubt but that Mrs —— died asphyxiated, from violent pressure of the air passages against the sharp wooden edge of the sofa, upon which the entire weight of her heavy body was found suspended.

Since the first part of this communication appeared in the *Edinburgh Journal of Medicine*, I have been favoured with the following note from Dr Murchison of London, containing additional corroborative evidence on the subject, in the form of cases, which may be looked upon as experiments performed on the living body, and as otherwise interesting. The fact of the following cases having been recovered from, is of comparatively little consequence in regard to the question, my object in this paper being simply to prove that fractures of the larynx are much more likely to occur from *Manual*

Strangulation than by any other kind of injury or otherwise applied external violence, an opinion which Dr Murchison's interesting cases tend farther to establish. That mere fracture of the laryngeal cartilages, without other serious bodily injury, may or may not be followed by lethal consequences is not the question now being discussed, the point at issue being simply, in what manner were the fractures, as described in the medical report of Dr Wilson, produced? The death being readily enough accounted for by the general *post-mortem* appearances observed.

21, Upper Seymour Street, Portman Square,
London, *Dec.* 10, 1855.

Dear Sir,—I have perused with much interest the papers which have recently appeared in the *Edinburgh Medical Journal*, on the subject of Manual Strangulation, by yourself and Dr Wilson. I have thought it might interest you to be acquainted with some little experience I have myself had in these accidents. I have had occasion to observe two cases in which either the hyoid bone or thyroid cartilage were fractured during life by manual compression, and neither of which proved fatal.

The first case occurred in the year 1851, at the time I was Clinical House Surgeon to the Edinburgh Royal Infirmary, in the person of an elderly female, an out-patient of that institution. All that I now recollect of the case is, that the woman was brought to the hospital complaining of pain and swelling in the throat with some difficulty of swallowing. Most distinct crepitus was felt on grasping the *pomum Adami* of the thyroid cartilage and moving it from side to side. The woman stated that her husband had seized her by the throat the night before and squeezed it with all his strength.

The second case was also in the person of a married female, aged 29, who came to me, at the Westminster Dispensary, on the 28th of June last, complaining of swelling in the throat, considerable dysphagia, and slight dyspnœa. She stated that, two days before, her husband had come home drunk at night, had thrown her down on the floor, and forcibly compressed her throat with his right hand until she felt something snap. On examining the throat, there was found to be considerable swelling with ecchymosis about the upper part of the larynx, and on moving the fore part of the arch of the hyoid bone from side to side, distinct crepitus could be both heard and felt. My then colleague, Mr Wade, surgeon to the Dispensary, saw the case and satisfied himself as to the existence of the fracture.—I am, Dear Sir, yours truly,

Charles Murchison, M.D., M.R.C.P.L.

Dr Keiller, Edinburgh.

From the experiments which have been detailed, and the illustrative cases which have been given in this communication, I think we are fairly entitled to conclude, that it is not only possible to produce fracture of the larynx by manual compression, but that, of all kinds of external violence applied to the neck, what is called hand throttling or manual strangulation is by far the most likely to produce such a laryngeal lesion. And while they thus very decidedly tend to corroborate and establish the medical views, drawn from the *post-mortem* examination of the body of the woman, whose suspicious death became the subject of the forensic investigation so often referred to, they may hereafter serve a more useful and apparently more necessary purpose, that of aiding judicial inquiry in cases in which, without such experiments, the force of clear medical evidence might be questioned on the similar ground of want of direct experimental induction in regard to the possibility of manually inflicting laryngeal fracture.

In conclusion, I shall take the liberty of observing, that it is a duty incumbent on every practitioner to endeavour to render legal medicine as effectively demonstrative, and as little liable to non-medical depreciation and misinterpretation as possible. The natural dread of being subjected to undeserved reproof or severe dispraise, while engaged in the conscientious discharge of an anxious public duty, can assuredly be best overcome by the proper study of medico-legal science, which, whatever may be tauntingly said of it by those whose own "glorious uncertainties" are so proverbial, is well fitted, when duly and dispassionately appreciated, to promote the ends of justice, and ensure the exposition of truth.

The duty of the medical jurist in investigating and reporting on cases, is one altogether apart from criminal accusation, or criminal conviction; his proper function consists in simply bringing his professional knowledge and experience to ellucidate the various complicated questions which, from time to time, arise in legal investigations, and although thus privileged by the powerful agency of medical fact and experience, to aid the ends of justice in criminal prosecutions, it is assuredly neither his province nor his duty "to gather the array of proof around the party accused, and connect the culprit with the crime, a function which he gladly resigns to other hands," for (as Dr Wilson also properly remarks), "with the special guilt or innocence of the particular individual accused in any criminal prosecution, the medico-legal inquirer has really no concern."

In order to discharge aright any medico-legal duty assigned to him, the practitioner ought studiously to keep himself alike independent of the prosecutor and the prosecuted; by so doing, he will be best enabled to depone fearlessly, because conscientiously, and by thus acting irrespective of the majesty of the law, or the indignity of crime, he will the more surely, though indirectly, assist in vindicating assailed innocence, in detecting concealed crime, and in securing the punishment of the guilty.

ARTICLE VI.—*A few Remarks on Cholera.* By T. M. LOWNDS, M.D., Bombay Medical Establishment.

THE morbid appearances in autopsies of patients who have died from cholera, and the usual symptoms, are so well known, that I shall not preface these few remarks by enumerating them.

I think, we may conclude, from the morbid appearances observed, that the blood is more affected than any other portion of the body; and when we come to consider symptoms as they arise, to trace them throughout their course, to analyze the diseased state of system following cholera in those who recover, and the mode in which death is produced in those who succumb, I think we shall be led to believe that cholera is essentially a blood disease. Such a conclusion will by no means determine the way in which the cholera poison is introduced into the system, but it will, I think, when we consider all the circumstances and the symptoms of the disease, lead us to believe that the morbific principle is introduced through the medium of respiration.

There are no premonitory symptoms sufficiently determined to guide us before the actual choleraic purging has supervened; so, taking the purging of rice-water, cramps, and vomiting, followed at a very short interval by suppression of secretion and collapse, as the type of the disease, let us consider them in order, and see if they are likely to be produced by a diseased state of the intestinal canal by ingesta, or by atmospheric agency, poisoning the blood.

The first of these suppositions is so unlikely, that, knowing as we do, the *post-mortem* appearances, we may at once negative it. As to the second, Dr Snow has argued that, from the commencement of cholera being so different from the greater number of self-propagating diseases, it is more reasonable to suppose that the choleraic poison is introduced into the alimentary canal; also, from its action, being more immediately confined to that canal, and from the preliminary (?) diarrhœa being curable by mild remedies, that the poison cannot be considered as one of the blood. That the disturbance in the alimentary canal may be due to the presence of a poisoned state of the blood, is amply proved by the well-known fact, that many kinds of medicine, taken into the blood, as surely, or more so, exert their usual action, as if they were exhibited in the ordinary method.—(This proposition has lately been most ably supported, and to my mind proved, by Dr Headland in his Fothergillian Prize Essay. Poisons in a gaseous state, act even more certainly than when administered by the alimentary canal. Now, as to Dr Snow's second proposition, that since the action of the cholera poison is more immediately to be confined to the digestive tube, the cause must now be situated, or have been introduced into, that portion of the human frame. Here Dr Headland's proofs of the action of remedies again come to our aid, and determinately point out, that, even were Dr Snow's premises correct, the cause might still be resident in the blood. But I do not think we have the least evidence to prove that the action of the poison is more immediately confined to the alimentary canal, more than that the bowels are the chief road through which the serous portion of blood is poured out. If Epsom salts in solution, were introduced directly into a vein, and produced great diarrhœa (which it is well-known is the case), this diarrhœa could not be regarded as a primary affection of the stomach or intestines. We have in cholera, besides the serous diarrhœa, stoppage of secretion of almost every glandular organ. Sometimes the kidneys do continue to excrete fluid, but never normal urine—the fluid contains almost invariably much albumen, occasionally some so-called cholera-cells. The symptom of vomiting may be considered in the same light as purging, and for similar reasons referable to poisoning of the blood. Cramps, which usually supervene about the same time (at least in India), or very soon after the symptoms mentioned, are most frequent in the stomach, but by no means certainly located there. One of the worst cases of cholera I ever saw, had very slight cramps in the stomach, but these soon ceased, and he had most violent cramps in the legs, up to death. Most commonly, in Europe, cholera is preceded by diarrhœa for a greater or less period of time, but this does not obtain in India. This is, I believe, the experience of the majority of Indian practitioners, and certainly holds good in by far the greater number of cases I have seen in this country. Sometimes, in this country, the first symptom is deathly sickness, or even syncope. I do not think that diarrhœa can at all be looked on as in any way essential, but, as predisposing to the true cholera, it must bear, especially in England, an intimate relation. Here, it may be well, perhaps, before continuing, to glance at predisposing causes. We may, I think, class among these every cause which depresses the vital energy, whether it be lowering discharges of any kind, great fatigue, anxiety of mind, weak habit of body, pregnancy, convalescence from childbirth, etc. The progress of the disease after the primary symptoms have set in, is somewhat as follows :—Speedy stoppage of secretions, great thirst, diminution of animal heat, collapse, and blueness of surface ; breathing especially oppressed and laboured ; pulse quick, and greatly diminished in violence ; clammy sweat, and death.

Those patients who have recovered from an attack of cholera, have frequently, in England, consecutive fever, and in three or four instances I have seen in India, had symptoms which appeared to me precisely allied to those which frequently precede the fatal termination in Bright's disease, evidently indicating an accumulation of effete, or perhaps poisonous matters in the blood. Patients recovering have almost invariably albuminous urine. Is it not to disease of the blood, and to total stoppage of change beyond a certain point in the blood, and when the primary disease is overcome, a large amount of this half-changed debris is quickly completely decomposed, and we have consecutive fever produced ?

As to the cause of death in cholera, I should state asphyxia, but asphyxia of a peculiar kind, and acting in two ways. By the first method, death is produced in those well-marked cases of cholera in which there has been very little fluid lost, either by vomiting or purging, and where very little fluid is found in the intestinal canal after death, in these cases, death is caused by the very depressing and disorganizing effect on the blood produced by the cholera poison preventing its power to circulate, and acting perhaps more remotely on the sympathetic system. These cases are not, I believe, common in Europe, but in India they are by no means unfrequent, especially at the commencement of an epidemic. I have had several such cases related to me by professional men and acute observers, so that the fact cannot be doubted. By the second method, death is produced when the blood, by its tarry coherency, is unable to circulate, and so cannot obtain oxygen. In neither case can it be said to be pure asphyxia, but rather a compound of syncope and asphyxia, the blood not being absent but having its power annihilated, partly mechanically, and partly chemically or vitally, of assimilating oxygen in sufficient quantity. I would not here enter into the cause of death from the consecutive fever, as I wish to confine myself to the disease itself.

Having thus shortly sketched the most prominent features of cholera, I shall shortly notice the state of the blood as shown by analysis, and as observed in *post-mortem* examinations, as I conceive all other *post-mortem* appearances sink into comparative insignificance when compared with those of the vital fluid. Chemical analysis tells us that the blood in cholera in the early stage, differs comparatively little from the healthy state, there being merely a slightly increased quantity of organic solids and a decreased quantity of salts. The increased quantity of organic solids may perhaps be due to the non-elimination of those principles which ought to have been excreted by the liver and kidneys; the state of the blood, up to the period of returning convalescence, is such as we might expect from the drain which is going on. At no period does it seem that salts are so deficient in quantity as to render their return indispensable to the vitality of that fluid. At the same time that collapse commences, or about the same time the surface of the skin is observed to become darker in colour, the nails to become blue, the vital warmth palpably less, and very frequently a clammy sweat supervenes about the same time. All these point to some change going on in the blood, and a change more especially affecting the oxygenating process. The appearance of the blood itself is, I think, sufficient to convince any one that the changes are not merely those which would result from a mere deprivation of serous fluid, but would rather point to some vital disorganization of that fluid. Some German microscopist has described some of the red globules as partially broken up in cholera blood. Dr Headland has described the same as "devitalization." Before stating the disease, or rather the diseased state, that I should consider cholera to be, I would just advert to some opinions expressed in England, that cholic and intermittents prevail at the same time, and are produced by the same causes. In making these comparisons, those places must be excluded in which such diseases are almost endemic, as in Bombay, where isolated cases of cholera and of intermittent and remittent are of almost constant occurrence; but even in Bombay, the usual cholera season is from the middle of December or January, to the end of the hot season in May or June, the fever season, properly so called, being October and November. In Guzerat, where fever cases are of frequent occurrence all the year round, cholera most usually occurs epidemically during April, May, and June, the fever season, properly so called, being October and November. In the highlands of the Deccan, fever and cholera occur when present at the same periods respectively, as at Guzerat. Fever is frequently epidemic in stations year after year, when cholera is very rare. Cholera frequently occurs even epidemically at various times and seasons,—fever is comparatively regular. During the epidemic of cholera in Edinburgh of 1848-49, intermittent fever was not increased beyond its usual very low average. A very good epitome of the cholera epidemic which visited Kurrachee in 1846, will be found in Dr Arnott's report of the health of the Bombay Fusileers, in the transactions of the Bombay Medical and Physical Society for 1853-54, which certainly does not at all associate the diseases. I would, therefore, conclude, that in India at least, no intimate relations exist between them. I might multiply instances, but think the above sufficient. The march of cholera is frequently observed in India, but intermittent fever generally breaks out at one period of time over a large extent of country.

Dr Snow has lately attempted to prove that the excretion from cholera patients may get into drinking water, and so being used as drink, may reproduce the disease. This is most unlikely to occur in India, more especially among natives who are so particularly careful of their wells, and especially of the cleanliness of their drinking vessels; yet if an epidemic attacks a village or town, it is very violent at first, and then gradually dies away, in very much the same style in which it is so frequently seen in England. Yet Dr Snow has made out a strong case, and placed apparently all the circumstances on record; but there must, I think, have been some hidden cause, for even the epidemic described, in its course precisely resembled those in which no such cause could be supposed to exist. That such impurities in the water should predispose to cholera, none will, I think, deny; but that they are the exciting cause of the disease, few will be disposed to credit, who have watched cholera in its widely extended march, who consider its arrival at a place, its rapidly reaching its acmé, and almost as rapidly disappearing. If Dr Snow's theory were correct as to propagation, cholera would go on increasing almost *ad infinitum*, for every fresh case adds a fresh nucleus and centre of propagation, and each case, by increasing the amount of dejecta, very much increases the probability that some may be swallowed accidentally, and thus produce the disease. That dejecta, if swallowed by a person in health, might produce the disease, no one, I think, can reasonably doubt; but that this is the usual mode of propagation, I most distinctly deny, from the above considerations.

Then what is cholera? I should regard cholera in the light of a speedily acting poison, taken into the system most probably by the medium of respiration, some peculiar principle in the atmosphere, which, under favouring circumstances, localizes itself. It attacks persons predisposed to it by existing circumstances, or by causes which Dr Alison characterizes as "causes of deficient excitement, and causes of excessive or exhausting excitement." Cholera cannot be classed with the self-propagating diseases which run a determinate course. What are we to regard as the disease, for its course is so ill-marked; in one case purging of rice-water stools, vomiting and cramps, with almost total suppression of secretion, will continue for several days? In another case, without previous purging, the same symptoms will come on, but with this difference, that the dejecta are very small in quantity, and yet collapse and death will supervene in the course of three or four hours. Are those cases of purging of rice-water stools with cramps and vomiting, slightly developed, to be regarded as cholera? I think they are; for if we regard these symptoms, or perhaps the symptoms of rice-water purging as the type of the disease, we get over many of the difficulties attending the investigation of it. All the other symptoms are, I think, but the sequelæ of this state more highly developed. Then, if it is supposed, that in this form of cholera, the patient has not received a large dose of the cholera poison, or, in other ways his constitution is not particularly predisposed to it, we at once see how it is that comparatively mild remedies early exhibited, by checking the drain from the circulating system, enable nature to get rid of the poisoned state of blood, by freeing the circulation from oppression or preventing it. As somewhat analogous, I should instance, that the strongest external stimulus applied to the skin in cases in which poisonous doses of opium have been taken, is often effectual in preventing a fatal termination. Flagellation applied to the hands and feet, has enabled the blood to recover from, and get rid of, the poisonous effects of large doses of opium. May it not be in a like way that at times the simplest remedies are effectual, or even cases recover in which no remedy at all has been administered, simply that the blood not being very highly efficient, or the health of the affected person being in the most favourable state for doing away with the poison, is enabled by the stoppage of the drain from it to recover its normal state. The state of system amenable or non-amenable to cholera poison, is quite unknown, with the exception of the predisposing causes I have stated above. The remarkable state of the atmosphere preceding the Kurrachee outbreak in 1846, would point to some meteorological phenomena as decidedly influencing it, and the immunity of certain parts of the camp would say that some unknown cause was at work to localize the disease; but that these causes were only temporary, is proved by the rapid course of the epidemic, and its sudden disappearance. It would seem as if the cause were primarily in the air, pursuing a course in a determinate direction; whether this influence was some peculiar atmospheric state, some vegetable or animal cell formation, in any case infinitesimally small, but still sufficient to create, aided by local circumstances, a comparatively local disease, quickly disappearing, and why doing so, as unknown as the disease itself. I should then regard cholera as a blood disease, or as a poison absorbed into the blood from the air, and as such producing symptoms varying according to the constitution, state of system, and external circumstances. Is cholera contagious? The general opinion in India is, that it is not; were it so, it would be almost impossible to account for its speedy decline. Nor can it be a self-propagating disease, for the same reason. Sometimes in England, in suitable circumstances, it would appear to be self-propagating; but even epidemics in England last so short a time that we can scarcely conceive it is self-propagating, without some peculiar atmospheric condition. Its appearance in one place serves to preserve the place for some time from second invasion, or, in other words, the poison has burnt itself out, and additional care is taken to prevent predisposing causes making their appearance.

Having shortly considered cholera in the above relations, I would now, in reference to the views advocated, consider its treatment in a rational point of view, as far as our limited knowledge will permit, and would quote a passage from M. Bouchindal on poisoning, which seems to me forcibly to express what should be our aim in the treatment of cholera, "Quand a le poison est absorbé, il ne peut ètre facilement et promptement éliminé de l'économie, si l'on ne peut le poursuivre dans le sang avec le contre poison, il faut avoir recours à des remèdes ou agents dynamiques dont l'action n'est pas nuisible et peut si substituer à l'action dynamique facheuse du poison." In the case of cholera we know no counter poison, hence we must follow the latter part of the indication, and endeavour to enable the system to throw off the poison by supporting it under the action of the latter. I have already mentioned the disintegrated apparently "devitalized" state of the blood. Bearing this in mind, we have two distinct methods of treatment open to us, nay, which may be put in force almost at the same time. The first indication is by endeavouring to put a stop to the drainage of serum, and thus enable the blood, by preserving it in as normal a state as possible, to recover its equilibrium, or, in other words, to allow nature to work its own cure. The second, is more directly to stimulate the blood to healthy action by every means in our power.

The first of these indications (for I would put entirely out of view the proposals which have been made to take away the poisonous matters from the intestines by purgatives, as conducing to aggravate the disease) has been, and must continue to be, the primary indication; for, as I think that diseased state called choleraic diarrhœa to be only a mild form of the early stage of cholera, and as this is generally curable by the use of means which restrain this serous discharge, it furnishes us with the surest help to guide our treatment afterwards. It would be superfluous to attempt to enumerate the usual mild astringents, or the more powerful, which are commonly in use. Creosote has seemed to me to have considerable power. I am quite certain, in one case of cholera, in the first two days of the breaking out of the epidemic, it acted at the commencement like a successful charm. This was within an hour of the seizure, and yet every symptom well marked. In many other cases I have seen it beneficial in the early stage, but should not trust it alone, always giving besides a mercurial, to assist (if possible?) the restoration of secretion. I may also mention another case of cholera, during the same epidemic, in which rapid and profuse salivation took place after a third dose of calomel, gr. v., with opium gr. ss., at intervals of an hour. This happened at the commencement of the rains in 1854, at Sholapoor, and the sudden change which took place from a dry to a moist and rainy atmosphere, may have helped to occasion salivation. The case was well marked. Some ten cases of cholera had occurred within as many days in a circle of two hundred yards around, and I was called up at three A.M., to see this patient (a weakly European woman), who had been attacked an hour before, with purging of thin-water stools, cramps, and vomiting; the stools were not kept, anxious expression of countenance, small pulse, etc. Quite well on going to bed. Besides the calomel and opium, she had a sinapism applied to epigastrium. I saw her again about five A.M. She had had several stools of the usual choleraic appearance since the first visit, but none during last hour. At half-past six A.M. I again saw her; she had taken three doses of calomel and opium; no more purging nor vomiting; some cramps remained, but less than they were. All the glands of the mouth swollen, and ptyalism commencing. In the evening of the same day patient could not open her mouth, so severe was the salivation. This was one of the later cases, only two coming afterwards, while I remained at Sholapoor. This is the only case I think I have seen in which salivation occurred, certainly at so early a period, and I do not remember to have read of any similar case. Cholera had been epidemic among a vast number of villages scattered over a large extent of country, but did not remain long in any place. Diarrhœa was not prevalent at the time, not more than one or two cases coming under treatment. It would be most difficult to explain why mercurials should be of advantage (if they are so?), unless by assisting to restore secretion. Opium should, according to theory, benefit by stopping the diarrhœa, but most decidedly be hurtful, as preventing secretion, and also in regard to the second point indicated above. It has frequently been stated that opium is hurtful; I am certain it is frequently given with great advantage in small doses in the early part of the disease. Again, we should argue from theory, that creosote, by its highly astringent power, should be useful in restraining diarrhœa, but from its highly carbonized composition, and its property of absorbing oxygen, it should not be given, except when there is a necessity for fulfilling only the first indication, as it would be decidedly against our stimulating the vital fluid. The cases in which it has appeared to me most decidedly beneficial, were those in which it was early administered. It should, I think, be repeated in half-an-hour, and once again, and then, if it did not seem of benefit, it should be discontinued. Of the many vaunted remedies, which include, I think, almost every article in the pharmacopœia, it is scarcely necessary for me to speak. I think, in this stage, astringent and sedative remedies should be given, with perhaps mercurials to assist healthy action. Sinapisms, etc., externally. The principles which, according to the above, should guide us, are sufficiently indicated in what I have said with respect to opium and creosote.

In considering the second indication of treatment which I have set forth, as perhaps pointed out by theory, viz., that of stimulating the blood by every means in our power, it would appear to me better to attempt its elucidation, by taking the three methods that we have, of introducing remedial agents into the circulating system separately, and considering them in order, viz., 1st, By the stomach. 2d, By inhalation; and 3d, By introducing them directly into the blood.

1st, Stimulants introduced into the stomach. The most important of these that has as yet been used extensively is alcohol, under various forms; and it is quite evident, both from the large proportion of professional men who condemn its use from experience, and from the consideration of its composition, that it can only act by exciting the circulation through the medium of the brain. Also, that it must, if received into the circulation, act injuriously according to the views above propounded, by withdrawing from the blood oxygen, at the very time that the corpuscles are most in want of it. This must, I conceive, completely act as a bar to our having any faith in it as a stimulant, at the stage of the disorder when death is threatening, through non-assimilation of oxygen. That it is occasionally useful in the first stage, by its astringent and sedative power, I allow, but at the present stage, it must be hurtful. Ammonia, in various forms, has been proposed, and it doubtless may secondarily assist the circulation by communicating more energy to the nervous system. The administration of chloroform at this stage, early collapse, seems theoretically to promise more. It seems to me that it is a special stimulant of the circulating system, at least acting more directly than any other on that system. Its chemical composition would lead us to infer that it might act without withdrawing any great amount of oxygen, but rather assist, by presenting it in a nascent state to the blood corpuscles for oxygenation. I am quite certain, in one well marked case of commencing collapse, it was given with the most marked advantage, and completely stayed the further progress of the disease in the space of an hour, doing away with every bad symptom. It is often very useful in allaying the torture of the cramp, and in preventing sickness. It should, I think, be given in frequently repeated doses. The fact that chloroform, when mixed with blood, renders it a bright arterial red, should not be forgotten. The next class of remedies are those by which we might expect to convey oxygen more directly to the vessels ramifying on the walls of the stomach, and this would include water in which chlorate of potass, hyper-manganate of potass, oxygen, peroxide of hydrogen, and, perhaps, iodine, had been dissolved. I am not aware how many of these remedies have been tried, or if some of them, as hyper-manganate of potass, deutoxide of hydrogen, and iodine solution, might not act prejudicially. It is rather with a view of pointing out how, under my idea of the disease, they might be expected theoretically to act in a favourable way, that I would urge them especially on the notice of those who may be able to test them at a particular stage of the disease, when remedies for the disease, which have only the view of stopping discharge from the intestinal canal, are not, I think, of the least use. Not that I think these remedies should be entirely reserved for this stage, but that they are more especially adapted to it theoretically than any others. Oxygenated water, and perhaps a weak solution of protoxide of hydrogen, would seem to me a most valuable drink at any and all periods of the disease.

In the second mode of exhibition by inhalation, oxygen, we might expect to answer our aim. It has, I believe, been tried, and in some cases with beneficial results. Chloroform might be useful to a small extent, but I should fear its narcotic effect.

With reference to the third mode of exhibition, after so many trials with various solutions to supply supposed deficiencies, I would think the injection into the veins of water saturated with oxygen gas, or of a small quantity of deutoxide of hydrogen, dissolved in a large quantity of water (if it is found by experiment on animals not inimical to life), merited a trial, and to be successful, the injection should be repeated at short intervals, and not delayed too long. The intervals to be regulated according to the observed effects.

I trust I shall not be accused of presumption in publishing this comparatively short and rough statement of views. Only one or two of the remedies proposed have not been reported on before, and I am unable at my present station, Mount Aboo, where cholera is very rare, to make any experiments, and I have access only to a very limited collection of works on medicine, which last has prevented my giving extracts and references as I should have wished.

MOUNT ABOO, September 25, 1855.

ARTICLE VII.—*Popliteal Aneurism, Unsuccessfully Treated by Pressure.* By JAMES MILLER, Esq., Professor of Surgery in the University of Edinburgh, and Surgeon to the Royal Infirmary.

J. C., æt. 34, a soldier, was admitted into the Royal Infirmary, October 24, 1855. He belongs to the battalion-aid, and is often employed in running rapidly with flags, from one part of the field to another, while the regiment is in movement. To these sudden and great exertions, he has no difficulty in attributing his present ailment.

The source of predisposing cause is not wanting. He is not the most temperate of men, and he has suffered from syphilis.

About two months before his admission, he first became aware of swelling in his left ham. It was observed by the surgeon during hospital inspection. The man himself had felt no symptom directing his attention to the part.

The nature of the swelling was at first obscure; and for a month after its detection, the patient did not desist from his ordinary duties.

At the end of the month, he was admitted into the Regimental Hospital, as affected with popliteal aneurism; and he was there subjected to treatment by pressure.

The pressure was never used more than two hours in each day; the patient proving in all respects very intolerant of it. It was continued for a month, however, and then the man was admitted into the Royal Infirmary, the tumour having undergone little or no change during his stay in the Regimental Hospital.

On admission, the tumour was found distinct, but still of no great size; causing no pain, or swelling, or any inconvenience whatever. Indeed, it was with difficulty that the patient could be persuaded of the inexpediency of his being furnished with a general "pass," for the purpose of his going out and in, and amusing himself pretty much as he chose.

It was resolved to continue the treatment by pressure; and, accordingly, this was applied in the ordinary way, by means of Dr Carte's apparatus. But, the man's thigh being large and muscular, considerable intensity of pressure was found necessary for impressing the tumour at all; and such pressure proving irksome by pain, the apparatus was alternated in use with a simple lump of lead bound over the vessel.

The nature of the disease, and the method of its cure, were made plain to the patient, so as to obtain his intelligent co-operation in the treatment.

With all his care, after the first four or five days, seldom could Dr Carte's instrument be borne for more than one or two hours in the day.

On December 8th, about a month and a half after his admission, no satisfactory change had occurred. On the contrary, the tumour was decidedly larger, not indurated, pulsating strongly, and causing painful sensations in the knee and limb.

The man, too, had ceased to place confidence in that mode of treatment, and was become impatient of its continuance.

It was accordingly resolved to abandon pressure, and have recourse to the ligature.

A week's rest was given, with a double intent; first, and mainly, to allow the parts to recover from the irritation and excitement of pressure, and to settle down into their ordinary quiet state, before interfering with them by knife and needle; secondly, to afford an opportunity for that chance of cure which sometimes becomes realised after abandoning pressure as apparently ineffectual.

By December 15th, that chance of cure had passed away; and the thigh seemed in a very suitable state for operation. On that day, therefore, a month and three weeks after admission, the artery was tied; the operation proving remarkably simple, and in all respects satisfactory.

Pulsation in the tumour ceased at once, and the bulk fell fully a half. The temperature of the limb was never sensibly affected; and the patient when removed to bed, complained of no pain or uneasiness. Within a few hours after the operation, pulsation returned in the tumour, with tolerable distinctness, though without much force; and continued more or less perceptible by the touch, for about a week or ten days.

The wound healed almost entirely by the first intention; a slight suppuration taking place only in the immediate neighbourhood of the ligature. The tumour gradually hardened, lessened, and disappeared in the usual way.

The only peculiarity in the case has been, the remote period of the ligature's separation. Under repeated trials, it remained quite firm; and it was only on the thirty-ninth day that it yielded to a steady pull. The noose was quite empty, but to the string around it, fleshy masses were intimately adhering: evidently it had been separate for sometime from the artery, and had become imbedded and retained in the plasma.

This adds another to the list of cases in which pressure has been tried unsuccessfully in this city, for the cure of aneurism. That mode of treatment succeeds in a fair proportion of cases elsewhere: the reason of its failure here is not apparent. Here, as elsewhere, the pressure is applied by the patients themselves, assisted by the nurse, dresser, or clerk; the instruments are similar, the principles of guidance are the same. There is no room for the play of disparity in skill on the part of the surgeons; for they have little or nothing to do in carrying out the details of treatment—it is theirs to exercise a general surveillance or control. The patients themselves cannot differ much; they seem equally intelligent and willing, their vessels are as compressible, their blood is as coagulable; but still the cures do not come. Let us hope that the explanation lies within the range of the doctrine of chances; and that ere long the tide will turn, bringing a succession of cures, continuous for a time.

With one thing I am bound to express a sense of dissatisfaction. Thoroughly convinced of the soundness of the *principles* of treatment, one cannot but feel that the means as yet in our power for putting these into *practice*, are not what they ought to be. Dr Carte's apparatus is too complex and cumbrous, to say nothing of its expense; and all the other instruments are liable to serious objections too. Something *simple, safe, and sure*, in the mechanical department, is still a desideratum; which, when supplied by the ingenuity of the profession, as ere long it surely will be, will go far, I am convinced, to secure a much higher success for pressure than it has yet attained.

Baffled thus repeatedly in your trial of pressure, do you mean to persevere in its use? Most certainly I do, and for the following reasons:—

First—a fair trial does no harm.—When rightly managed, it causes little or no suffering, the parts are not chafed, far less ulcerated or sloughed, and there need be no increase of swelling in the limb; the tumour is not over-excited, and there is no risk of rupture of its cyst.

I have said that the tumour is not over-excited. The tendency of pressure, however carefully conducted, is occasionally to excite the tumour *somewhat;* but then that is salutary. For we must always remember the two things needful for cure; not merely coagulation of the cyst's contents, but also (and very prominently) excitement in the cyst itself, whereby it becomes glued and incorporated with its solidified contents. A certain degree of excitement, therefore, in the tumour, tends directly towards cure; it is one of the remedial qualities of pressure; and ordinary care is sufficient to prevent its going to excess.

Experience has fully shown, besides, that the parts compressed do not suffer such inflammatory or other changes as interfere with the performance of the operation by ligature at a subsequent period. In but one of the cases under my care, that which I had last the honour of reporting to this society,[1] was there any matting or other change of the tissues. But in that case, be it remembered, the pressure had been continued for the space of *six months*—a period of trial unnecessarily, and as I now think injudiciously, long. *Six weeks* or two months, of careful pressure, I am satisfied, will leave the parts after a week's interval of repose, quite fit, in every respect, for the knife and ligature.

Careless and ill regulated pressure, no doubt, may inflict every possible evil. But the only feasible objection that can be brought against a judicious trial of careful pressure, as it seems to me is, that the collateral circulation may become too thoroughly established, so that when the ligature is ultimately applied, trouble may be experienced in controlling the return-pulsation of the tumour. That objection, however, is met by watching the effects of pressure very specially with this view; so that when signs of unusual freedom and fulness in the collateral vessels do show themselves, the pressure may be at once desisted from, in favour of the ligature.

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[1] *Vide Edin. Med. and Surgical Journal,* January 1855, p. 33.

Second—a fair trial of pressure does good.—Not only does it do no harm; even should it fail, it does good. When the opportunity for operation comes, we look back upon the past, and find that the time spent in attempted cure by pressure has not been time *lost*, but, probably, time *gained*.

The two great risks of the operation by ligature are, the immediate and the secondary. The former—gangrene of the limb, by reason of the abrupt interruption to the arterial supply; the latter—hæmorrhage, from ulceration of the vessel at the tied point, by reason of untoward inflammatory progress there.

That gangrene of the limb is occasionally the result—"pure and simple,"—of tying the femoral artery for aneurism, facts have demontrated; the change having occurred so instantaneously, as altogether to preclude the possibility of inflammatory excitement, or any other secondary agent, having come into play. That untoward result obviously depends on a want of sufficient freedom in the collateral circulation; a want which the previous use of pressure must have thoroughly obviated—so thoroughly, indeed, as to run some chance of turning the balance the other way, as has just been stated when considering the only valid objection which seems to admit of being fairly brought to bear against the preliminary attempt at cure.

Let pressure be carefully applied, for a month or six weeks. At the end of that time, you are certain to have a far freer collateral circulation of the limb than you had before; and you proceed to operate, with no dread of gangrene, provided your ligature is skilfully applied, and leaves the vein uninjured. And the result of your careful watching of the effects of the pressure has been an equal assurance, that as yet the collateral circulation, while free enough to prevent gangrene by mere arterial interruption, is not so excessively free as to be likely to cause trouble by recurrent activity in the tumour.

In the present case, the *equanimity* of the limb after the operation was very remarkable. It never was the seat of ache or pain for many days; and its temperature was never in the slightest degree disturbed; although no precautions were taken with this view—the limb being merely supported on pillows in a convenient position, or left otherwise entirely to itself. The return pulsation was not more strong than is often observed, in cases where no previous pressure or treatment of any kind has been applied; it did not continue for an unusual time; neither did it require any direct treatment whatever; without bandaging, it ceased in the ordinary time and way.

The previous use of careful pressure, then, for a month or six weeks, tends very decidedly to relieve us from the risk of one of the main dangers of the operation by ligature—gangrene. As to the other—hæmorrhage, through inflammatory accident—it may not be equally effectual, but its tendency is certainly favourable.

A patient laid up in bed for six weeks, on a carefully regulated regimen, and every function of health specially looked to—is surely, at the end of that time, likely to be in a much more auspicious condition, so far as inflammatory tendency is concerned, than a patient but recently removed from the street, the shop, the manufactory, or the field. An excitant of inflammation may be applied then, with much less chance of the inflammation proving either intense in its degree, or unfavourable in its kind. The patient is not weakened so as to be insufficiently capable of all plastic and reparative efforts, while, at the sametime, the edge of his excitability is thoroughly blunted and rounded off, so as to be comparatively safe.

Some surgeons, it is well known, prefer under all circumstances a very considerably extended period of probation and preparation for their patients, before submitting them to *any* important surgical operation. One American surgeon, for example, who has attained to great celebrity by success as a lithotomist, attributes all his good fortune to weeks spent in preliminary *training* of every patient. And it were no assertion at variance with either the ordinary principles or the ordinary experience of true surgery to state, that, (unless in those exceptional cases where extreme urgency is required, by reason of the great size of the tumour, the sufferings of the patient, the swelling of the limb, or other such like speciality) in all cases of external aneurism, where cure by ligature is contemplated, an extended preparatory treatment should be carried out, merely with an eye to improving the state of the general system, so as to render the patient in that respect more capable of a salutary and successful response to the stimulus of the knife and ligature. Were weeks thus spent in simple preparation of the system, in every ordinary case of popliteal aneurism—who could blame the surgeon? who could righteously accuse him of wasting time? Well—granting that such a period of preparation is at least *allowable* in all ordinary cases, and in not a few greatly *expedient*, for mere *constitutional* purposes—if we can superadd, during that time, a *local* treatment, which, when rightly managed, will not only not detract from the success of the subsequent operation, but will positively contribute to it; and which, moreover, runs a fair chance of even rendering that operation altogether unnecessary, by having itself meanwhile effected the cure—surely my former statement is fully borne out, that time so spent is not misspent; it is not time lost, but time gained.

On these grounds, I feel myself shut up to continue to afford a fair trial, in every suitable case, to the modern treatment of aneurism by pressure; always taking care to conduct that cautiously, with a special regard to the effects produced; under no circumstances prolonging its use beyond a reasonable time; and always ready, on hints given by the part or patient, to take up the knife and needle, if need be.

Better compressors, however, are wanted. And in that direction, let me presume to suggest, that the attention of the profession should be very specially directed.

Part Second.

REVIEWS.

Chirurgische Klinik. Beobachtungen und Erläuterungen in dem Gebiete der Chirurgie. Von Dr Hermann Friedberg, Docenten der Chirurgie und Staatsarzneikunde an der Friedrich-Wilhelms-Universität in Berlin. Erster Band, mit 23 Tafeln Abbildungen. Jena, 1855, pp. 320.

Clinical Surgery, or Surgical Observations and Illustrations. By Dr Hermann Friedberg, Lecturer on Surgery and Legal Medicine in the University of Berlin. Vol. I., with 23 Plates. Jena, 1855, 8vo., pp. 320.

This, the author informs us, is designed as the first of a series of volumes, to be issued at irregular intervals as the requisite materials may present themselves, and to be especially devoted to the advancement of clinical observation and practice in surgery. For the farther promotion of this object, it is the desire of the author to attract the co-operation of other practical surgeons, so as to found a body of archives for clinical surgery; although, should he succeed in establishing this, he does not appear to intend that it should preclude him from continuing a separate publication, presenting more exclusively the results of his own experience.

The volume before us is chiefly occupied with the details of seven cases of rhinoplastic, meloplastic, blepharoplastic and proctoplastic operations, and with the liberal explanatory comment by which these cases have been elucidated. Beyond these, we have merely the account of the extirpation of certain tumours, connected with the parotid gland; and of others developed in the osseous tissue: but among these also are interpersed copious practical remarks, on points of interest and importance, naturally evolved during the consideration of his subject. We doubt if ever, since the period when the Brancas of Sicily, in the fifteenth century,[1] anticipated the achievements of Tagliacozzi in the century which succeeded, there have been performed anywhere reparatory operations more ingeniously devised, and, apparently, more successfully completed, than those of Dr Friedberg, reported at pages 38 and 125 of his observations; and to these we have sincere pleasure in directing the attention of our readers. The scientific surgeon will find other topics of interest, in the investigations of the author as to the relations of the temperature of the body to the conditions of surgical disease, and to the results of operations; as well as in his pathological inquiries on a variety of incidental topics, and in his examinations of the diseased structures.

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[1] It is to the historian of the general literature of Italy, (Tiraboschi, *Storia della Letteratura Italiana*, T. vi., L. ii., C. iii., S. 24), rather than to those who, like De Renzi, have restricted themselves to the annals of its medical science, that we are indebted for the more interesting, the distinct, and apparently authentic notice of the success of the Brancas, in the various forms of plastic surgery. While Pantaleone da Vercelli, at the same remote period, led the way for the more recent Ailhauds and Bucellatis, now fitly imitated by the Morrisons and Holloways, in promising long life, and immunity from disease, to all assiduous gulpers of certain universal pills, the family of the Brancas, probably independently of any derived information from the East, more worthily surprised their cotemporaries, by the introduction of their ingenious processes for the restoration of lost lips, ears, and noses. Transferred afterwards to Calabria,

But, for many of these points, we willingly refer to the volume itself. It will be found to contain that description of interesting and valuable remark, which could only have proceeded from a zealous surgeon, and an accomplished and experienced operator. The illustrative plates, we may add, are supplied to an extent, and in a style of execution, which confer ample aid towards the comprehension of the more complicated portions of the numerous details.

Surgical Reports, and Miscellaneous Papers on Medical Subjects. By GEO. HAYWARD, M.D., President of the Massachusetts Medical Society; Fellow of the American Academy of Arts and Sciences, late Professor of Surgery in Harvard University. Boston, 1855. Pp. 452.

DR HAYWARD, dedicates his volume of reprinted papers to his former pupils, as the fruit of "a professional life of forty years' continuance." A large part of the volume consists of surgical reports and memoirs, so miscellaneous in character, that it would be difficult to give any idea of them here, without more space than we have at our command. Among them are articles well worthy of perusal on Erysipelas (p. 13), on Inflammation of the Hernial Sac (p. 24), on the Operations for the Permanent Cure of Hernia (p. 91), on the Statistics of Amputation (p. 142), and on Vesico-Vaginal Fistula (p. 196). Some of the surgery is a little out of date, as in the case of the discussion of the operations for hydrocele, in which the author appears to speak dis-

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and practised there by the Vianei of Tropæa, the art became known, through its attributes of wonder to an ignorant age, as the *Magia Tropæensium;* a designation otherwise the more easily attached to it, as that period was certainly not likely to be more punctilious than our own, in the justice of its distribution of medical celebrity. How many even of our countrymen would have heard of Tagliacozzi himself, though his treatise is, in many respects, a model of surgical skill and precision, were it not for the apocryphal notice of him inserted by Butler in his Hudibras, who probably borrowed the ridiculous story, with a further ludicrous perversion of his own, from his cotemporary, Van Helmont? (*De magnetica vulnerum curatione, S.* 23: *Ortus Medicinæ,* Amsterodami, 1648.)

paragingly of the injection of the sac, a mode of cure of which he had confessedly no great amount of experience, but which has now become, in this country at least, established as the best, and indeed the only one admissible in most cases of the disease. In the paper on Tenotomy also, as well as in others in the volume, there is a good deal which must be considered superfluous at the present day. One or two of the papers of less purely surgical interest open up some debateable topics. The author holds strong views as to the non-contagiousness of cholera; and we cannot help thinking that he might have favoured us, in reprinting his paper on that subject, with some more novel facts and arguments than he was enabled to collect, in 1832, from the works of non-contagionists who had written before the first epidemic of the disease visited America. Dr Hayward assumes in the short paragraph prefixed to this paper, that since the date of its publication, "almost all medical men" have become non-contagionists. If it were so, we can only say that the publication of this paper was unnecessary, for there is nothing in it that is not at least equally well stated in works accessible to every one. But the assumption in question betrays not a little of the disposition to overleap evidence which it is difficult to rebut, since every one knows that the circumstances of the introduction of cholera into America, both in 1832 and 1849, were considered by many physicians of the highest credit and judgment to afford very strong presumptive proof of contagion, and multitudes of facts have been accumulated since the date of the article here reprinted, which it was scarcely becoming to pass over in silence when introducing the subject again to public notice. The paper on anæsthetic agents presents, in like manner, some debateable matter. The author's preference of sulphuric ether to chloroform is based on grounds which would be sufficient to support his conclusions, were it certain that he has correctly stated their relative claims to our support. But it is difficult to acquit Dr Hayward of some degree of unconscious prejudice, when we find him stating as follows in respect of chloroform:—

> "An individual in this vicinity was thrown into violent convulsions, which continued for three or four days, during all which time she was in a state of insensibility, from the inhalation of the vapour of a few drops of chloroform, administered by a careful and judicious physician. *It would be easy to multiply examples of this kind.*" P. 247.

Now, we do not hesitate to say that in this country it would be very difficult to multiply examples of this kind, except by the process which was adopted in the multiplication of the black crows celebrated in the fable. Further, we take the liberty of regarding the example in question as one having little or nothing to do with chloroform, inasmuch as convulsions, or any other morbid state, lasting for three or four days, must have had its foundation in something deeper rooted in the system than the action of an anæsthetic which invariably passes into and out of the blood with such extreme rapidity. We do not wish either to extenuate the dangers or magnify the virtues of chloroform, when we say that the above statement goes for nothing with us. We are ready to admit that chloroform has caused not a few fatal accidents; and we are therefore the advocates of every precaution in its use which appears reasonable and consistent with obtaining those advantages which it is unquestionably fitted to bestow. We have no feeling which would prevent our returning to the use of ether, were we assured that it was really equally effectual with chloroform, and more safe, as asserted by Dr Hayward. But when we are told that ether has not in any instance, save one, and that doubtful, been shown to have sacrificed human life, we cannot avoid remembering that chloroform has probably been administered in many hundred cases for one in which ether has been used. Still, on this point, we are open to conviction; and we invite the testimony of other American surgeons as to the comparative safety of chloroform and ether, since it appears that the latter agent is still extensively employed in the country to which we owe the discovery of its properties, and the first successful employment of anæsthetics in surgical practice. We quote without further remark the words of Dr Hayward on the subject:—

> "My experience, since the publication of the preceding papers on the anæsthetic agents, has satisfied me of the correctness of the views I then took. If there be any change, it is that I attach more value to sulphuric ether, and have more perfect confidence in the safety of its inhalation than I had at that time. Of its efficacy I have no doubt. I have never, in a single instance, during the last five years, failed of producing by it entire insensibility to pain, without causing much inconvenience in its administration, and without any serious or troublesome consequences afterwards. Nor do I find any evidence that it has ever proved fatal, though it has been often exhibited in a reckless and unskilful way. . . .
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> "Nothing has occurred to change my opinion in relation to chloroform. Many additional cases of death from its inhalation have been published, and scarcely a medical journal comes to us from Europe that does not add one or more to the melancholy catalogue. It is wonderful to me that intelligent and educated men should continue to use an agent of such terrific power. That its effects are oftentimes salutary, every one will admit; but that they are not unfrequently deadly, no one can deny." P. 250.

Dr Hayward is manifestly a conservative in these and other matters. Throughout his book we find no evidence of altered opinions; a fact which, considering that the opinions are of many years' standing, shows either a remarkably unerring judgment, or a little unwillingness to be convinced. We should have been better pleased to have received a new work from the author, were it for no other reason than that we might be sure of having the full advantage of his experience; for we cannot help suspecting that the form of the present work has been in some places determined rather by dislike to the labour of re-casting and re-writing, than by his having made no change or advance in his opinions. But his reports and miscellaneous papers, such as they are, we heartily recommend to the surgeons of this country, who may be anxious to know something of American practice.

Kesteven's Domestic Practice of Medicine. London.

In brevity and clearness of arrangement, and printing, this work excels. But here our commendation must end, as we object to the principle on which such works are compiled. In the first place, there is an objection on the score of delicacy. A "domestic" book should not require to be locked up, and yet we cannot see how a manual, treating prominently of gonorrhœa and parturition, can consistently have a place in the parlour library; and, secondly, as regards utility, as medical men are never far distant from any dwelling, and as even vessels having fifty persons on board must carry a surgeon, we do not understand why such subjects should be discussed, in order to meet the very few exceptional cases that may occur in a century. Our idea of a hand-book of domestic medicine is one which will indicate the means to be taken to uphold personal and domestic health. When the machine gets deranged, "send for the doctor" should be the advice for all beyond this point.

Braithwaites' Retrospect, vol. 32.

Ranking's Abstract, vol. 22.

The best that we can say in behalf of those works, is, that both continue to draw largely from our own pages. The current volumes have, in addition to the ordinary contents, two good retrospective indices—Braithwaites' embracing the topics from vol. 29 to 32, and his rival from vol. 15 to 22.

Hints to Husbands. By one of the Guild. London.

"Dr Johnson," said a lady to fine old Samuel, "I am glad to see that you have put no improper words into your Dictionary." "Madam," replied the sage, gruffly, "you have been looking for them!" This "Husband," in like manner, has, under pretence of purity, been searching obstetric books for all kinds of nastiness. His object is to put down "man-midwifery," as he calls it, and to do so, he has brought together a greater amount of indecency than all the medical men will or can communicate to their patients, in whole generations. As to "Husbands," those who are possessed of proper self-respect, will speedily thrusts the "Hints" into the fire.

Part Third.

MEDICAL NEWS.

THE MONTH.

Mr Headlam has introduced his Bill for Medical Reform, and it has been read for the first and second time in the House of Commons. An abstract of its provisions will be found elsewhere.

Mr Syme has addressed a communication to Lord Panmure, suggesting the transference of the Chair of Military Surgery from the University of Edinburgh, to some place where the practical details of the Chair can be illustrated. It is a good maxim in public matters, never to give up anything without an adequate equivalent, and if the Chair in question is to be lost to us, it would be a good opportunity for obtaining a new Professorship in some department suited to the recent requirements of Public Boards. It will scarcely be creditable to us, if any student is compelled to go elsewhere for the means of obtaining appointments in India, or the Civil Service.

We regret to state, that the announcement by the Edinburgh Town-Council, of a retiring allowance to Professor Alison, and to which we alluded in our last, was premature; there being, it seems, no University funds at the disposal of the Council or Senatus, that can be made available for this desirable purpose. In this dilemma, application should at once be made to Government. Dr Alison ought by no means be made to suffer on account of his disinterested liberality in tendering an unconditional resignation of his charge. The State has shown that it can bestow pensions on professors while still retaining their appointments and drawing their fees, and we cannot see why, with a good grace, it can withhold one from a gentleman who, after a life of distinguished public service, voluntarily gives up his connection with two chairs.

A deputation of the University Graduates Association has had an interview with the Lord Advocate, for the purpose of urging the removal of the disabilities which prevent Scottish medical graduates from practising in England; and also for procuring the means of promoting higher scholarship in the north, by the institution of tutorships and fellowships. His lordship stated, in reply, that if the conflicting claims of the various medical corporations could be arranged, the first object might be accomplished during the present session. Regarding the second, the prospects were not so cheering, as no proposal involving money grants would be entertained at the present crisis; and University Reform must further give place to the Education Bill. On the latter being passed, his lordship mentioned that he was desirous of taking up the whole subject of University administration.

Dr Matthews Duncan has addressed a letter to the President of the Royal College of Surgeons proposing that students should engage in practical midwifery, before obtaining diplomas. As various public boards have taken the lead in this desirable movement, and as the suggestion is in itself so reasonable, we are glad to learn that there is every prospect of its being adopted.

Palmer's trial is to take place before the Central Criminal Court of London. Since our last, the newspapers have been flooded with all kinds of twaddle and gossip about insurance murders and secret poisonings. One print, in particular, has sent its sketcher to Rugeley for daguerrotypes of the stable-boys and publicans of the district; and a "special correspondent" has been employed to collect their histories and sayings, to extract information from Dr Alfred Taylor, and to squeeze out details from life assurance companies, new and old. And, as if these were not enough, it has also furnished delectable notices of the murders of Sir Thomas Overbury, and of the exploits of La Tophania, Madame de Brinvilliers, and other personages of equivocal notoriety. After being regaled with such horrors, it is no wonder that the public mind has become excited, and that every dish should be regarded as poisonous, and every insurance office be looked on as a murder club. It is not for the ends of justice, that premature and unauthorised scraps of information should in this way be made public, and we trust that the practice will in future be discountenanced by, at least, all professional men. The revelations said to be furnished by insurance offices, are curious, if true. For instance, we are told that two sources of insurance loss are German and Irish policies, the former from the proneness of the Germans to commit suicide, and the Irish from there being no statute in that country, providing that the insurer shall have a pecuniary interest in the life of the assured. The new-fledged institutions exposed to loss from such causes, should borrow a leaf from the more stable offices of the north, in which no policy is payable when the party dies by his own hand, or by public justice; and who farther carefully limit the extent and character of their Irish business. Some two or three offices informed the "special correspondent" that they "would on no account insure the wife of a surgeon;" and pains have been taken to call the attention of this *Journal* to this silly declaration. It does not appear to have occurred to the sapient persons who advanced this statement, that if medical morality be so low, that the wife of a medical practitioner is uninsurable, how are they to rely on medical testimony for the safety of their every-day risks, and if medical testimony is to be excluded, how are assurance companies to transact their business. Bad men will be found in every profession, but as a whole we will uphold medical men to be equal, if not above, any other professional class in the country for purity and uprightness of conduct. Where medical men require, and are legally qualified to insure the lives of their partners, few respectable offices will be found to refuse their proposals.

It is clearly against the interest of assurance offices, that insurance murders should be perpetrated; and they may safely be left to take precautions for their own protection; but, after all the outcry, even the Rugeley cases do not furnish matter for grave accusation against life assurance, as a probable incentive to murder. Palmer's wife was undoubtedly a successful instance, but his mother-in-law was not insured, none of his children were insured, the traveller was not insured, Cook was not insured. His brother, no doubt, was insured, but the policies still remain unpaid; and the groom, while proposed, never was accepted. On the whole, then, we are not warranted either from experience or probability, in concluding that insurance will ever bulk largely as a motive power for destroying life.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXXV., 1855-56.

Feb. 6, 1856.—WILLIAM SELLER, M.D., President, in the Chair.

I. CASE OF SUDDEN DEATH, CONNECTED WITH ABSCESS OF THE INTERNAL EAR. BY ALEXANDER EDWARDS, ESQ.

Mr Edwards exhibited the right temporal bone of a man about 40 years of age, who had been a patient at the New Town Dispensary. After having been exposed to wet, he was seized with pain in the right ear, accompanied, after a day or two, by a copious discharge, which could be forcibly squirted out of the external meatus, if he held his mouth or nose during expiration; there was also slight facial paralysis of the right side, the ear was poulticed, and he was given nourishing diet.

The acute symptoms gradually subsided, and the discharge was less copious; it, however, stopped rather suddenly; poultices were reapplied, but it did not reappear, and he was no longer able to blow air from the eustachian tube through the tympanum. Two days after the cessation of the discharge, he was seized with intense pain, confined to the right side and back part of the head; that night he had a convulsion fit, and died the next day.

Post-mortem.—On removing the dura mater, the right cerebral hemisphere and the whole of the cerebellum were seen covered with pus; on removing the right temporal bone, the roof of the tympanum was carious, and soft enough to be picked away with a dissecting forceps; its cavity was stuffed with recent lymph, which was packed in among the small bones, plugging up two small apertures in the posterior part of membrana tympani, and also the tympanic orifice of the eustachian tube. There was no pus in the labyrinth; the mastoid cells were full of pus, and the posterior wall had given way into the lateral sinus; a few sequestra lay in the pus; this had most probably happened after the deposition of lymph in the tympanum had prevented the free escape of the matter from the mastoid cells escaping through that cavity, and thence through the membrana tympani out of the ear.

II. CASE OF FATAL HÆMORRHAGE INTO THE ABDOMEN, CONNECTED WITH DISEASE OF THE OVARY. BY DR WILLIAM BROWN OF MELROSE.

The following note from Dr Brown to Dr W. T. Gairdner was read to the Society:—

"I send you in by one of to-day's trains a preparation of a case of disease of the left ovary, which may chance to be useful to you. The circumstances of the case were, I believe, as follows:—I did not see the girl during her lifetime; I have merely had the report of her friends. On New-year's-day evening a young woman aged 26, on the eve of her marriage, came up from Newstead, a village about a mile from Melrose, to make some purchases and to see some of her friends. She left Newstead about five o'clock in the afternoon. She remained in Melrose some time seeing her friends and making her various purchases; and seemed to every one in good health. About nine o'clock, as she was walking to a friend's house with the things she had been purchasing in a basket, she was suddenly seized with a feeling of faintness, and at the same time felt severe pain in the abdomen. With great difficulty she walked to her friend's house, a distance of sixty yards. When she got in she threw herself down on a chair, and said she was very ill, and went out of one faint into another. She was very white and haggard looking. Her acquaintances finding her in this state, and being able to feel no pulse, and seeing her quite cold, got alarmed, and sent for a person who gives himself out as a medical practitioner, who came and saw her; said it was a sort of nervous attack, brought on by excitement; gave her something or other, but gave no intimation to her friends, who were now present, that the girl was in any danger; and as the person, in whose house she was, seemed anxious to have her removed, she was conveyed home to Newstead in a covered conveyance. She gradually sank, and died the next morning at five o'clock. She was quite conscious to the last. As you may well suppose, the case made a great noise; and as all sorts of rumours got abroad about the cause of her death, to put an end to this state of matters, the Fiscal desired me to examine the body, and report to him the cause of death. I, for various reasons, asked him to conjoin with me in this matter my friend, Mr M'Dougall, surgeon, Galashiels. The post-mortem examination was performed yesterday, and the diseased mass is sent in to you. We found a large clot in the abdomen occupying nearly the whole of the umbilical and hypogastric regions; and, about as near as we could guess, four pints of bloody fluid in the abdomen, chiefly in the pelvis. Thinking you would be interested in the case, I have sent you these few rough notes. I can give you little information about the girl's previous health. She had been subject for a long time to attacks of vomiting; complained of uneasy feeling in her bowels, but made no complaint; and had never applied to a medical man."

Dr W. T. Gairdner remarked that he had been a good deal puzzled as to the true nature of the preparation which had been forwarded to him by Dr Brown, and which was now before the Society. He found the uterus in a nearly healthy state; the right ovary was somewhat enlarged, and contained large Graafian vesicles, but was in other respects healthy. The fallopian tubes and broad ligaments of the uterus were also in a normal condition. Over the left ovary there was a rent about an inch and a half long in the peritoneal coating, and the ovary itself was very much enlarged,—nearly equal in size to a turkey's egg. The tumour of the ovary consisted chiefly of blood, with a few fibres interspersed. The original nature of this formation was, in his opinion, doubtful. It had obviously been the source of the fatal hæmorrhage. It presented none of the appearances of a cancerous formation; and under the microscope there was no trace of any cell structure. There were one or two small polypoid excrescences in the uterus. The case was in some respects similar to those which were known in Paris under the name of "retro-uterine hæmatocele," having been brought some years ago before the Surgical Society of Paris by MM. Nelaton and Huguier. In none of the Parisian cases, however, was the hæmorrhage unequivocally traced to the ovary; and in none of them had death resulted, as in the present one, from direct hæmorrhage into the peritoneum. Indeed it was the belief of M. Nelaton that these tumours were rarely fatal, except by surgical interference. The greater number of those observed had ended in recovery, and the pathology of the disease was as yet very imperfectly understood. It had been supposed that the hæmorrhage was the result of menstruation; but this view did not rest, so far as he (Dr G.), was aware, upon any well ascertained data. He trusted that the rare and interesting case of Dr Brown would elicit the opinion of the members present upon these questions.

Dr Simpson thought that the nature of the case was quite clear, and that the dark mass was simply one of the pelvic blood-tumours, pelvic thrombi, or pelvic hæmatoceles, not unfrequently seen in practice. The blood in such cases was generally extravasated into the cellular tissue of the pelvis, and one or more of those anatomical situations in which we meet with pelvic inflammatory effusions and abscesses. Dr Gairdner thought the rupture of a pelvic blood-tumour, by a rent, allowing, as in this case, some of the effused blood to escape, fatally, into the peritoneal cavity, a rare or hitherto unobserved pathological fact. Two years ago Dr Simpson had reported two instances, which occurred within a short time of each other, in which pelvic thrombi had at last ruptured, with fatal effects, into the cavity of the peritoneum. Dr Brown's case differed from the general form of pelvic thrombi or hæmatoceles in another respect—in its lateral position around the site of the ovary, and within the cellular tissue of the broad ligaments of that side. There, usually, the effused blood forms also, at the same time, a more central kind of tumour, by lifting up the utero-rectal reflection of peritoneum—the blood being poured into the sub-peritoneal cellular tissue there, and passing down occasionally into the upper part of the cellular tissue which connects the vagina and rectum. In pelvic hæmatoceles, commonly met with in practice, when the disease is left to itself, sometimes absorption of the effused blood takes place; sometimes they will burst, secondarily, into the peritoneum, or neighbouring hollow viscera; and occasionally their sides become inflamed, and the result is a commixture of pelvic thrombus and pelvic cellulitis or abscess. The reason why pelvic hæmatoceles are usually situated on the posterior aspect of the broad ligaments and uterus, and thus get the name of retro-uterine hæmatoceles, is the anatomical arrangement of the pelvic fascia and ovarian vessels. A dissepiment of fascia rises up in the broad ligament, and divides the pelvic cavity by a kind of transverse diaphragm, which inflammation readily passes, but which effused blood does not pass. Behind this transverse septum are the divisions of the internal iliac vessels, supplying the uterus and its appendages, the ovarian being distinct, and lying beneath the peritoneum, higher up in the broad ligament. These vessels were specially liable to distension and congestion in connection with menstruation and conception, and the larger of them even ruptured occasionally under these conditions, particularly, perhaps, when their coats were previously diseased, giving rise to the pelvic thrombi or hæmatoceles. The same accident and consequence sometimes occurred in connection with parturition. Occasionally one of the vessels spoken of, ruptures directly into the peritoneum, without forming an intermediate thrombus, as in Dr Brown's case. Some years ago, Dr Malcolm of Perth was called to a case in which a lady of 23 or 24 years of age died of hæmorrhage into the peritoneal cavity from a ruptured ovarian artery. The lesion seemed to occur in the effort to empty the urinary bladder, the patient complaining at the moment of something giving way within her, and feeling immediately afterwards sick and pained. She sunk in about ten hours. The true nature of the case was ascertained by dissection. Sometimes death followed a very small effusion of blood into the peritoneal cavity. Dr Simpson had, in a case of the late Dr Skae, seen death follow in a few hours in a case of slight peritoneal fissuring of the uterus after delivery, only a few ounces of blood flowing into the cavity of the peritoneum. He had seen lately, with Dr Husband, a case in which death occurred from spontaneous rupture of the spleen in a pregnant or parturient female. Dr S. had just received the following details of this case from Dr H.:—

Mrs S., æt. 37, in the seventh month of her eighth pregnancy, and apparently in good health, was seized with a severe rigor about one A.M. on December 19, and at the same time complained of pain of left side, and of a sense of weight in the abdomen. The pain was not very acute, and she rose and walked through the room for sometime after the seizure. She vomited a good deal about seven or eight o'clock. When I saw her in the forenoon, her pulse was very rapid and weak; there was a remarkable bloodless appearance of the skin generally, and especially of the face, which was of a yellowish leaden hue. Her lips, nails, and mucous membrane of the mouth were livid; the respiration not materially, if at all, affected. There was considerable tenderness over the left side of the abdomen. She had taken an aperient before the seizure, and the bowels had been freely moved. Towards evening she became rather suddenly much worse, and about seven P.M., the pulse was nearly imperceptible and extremely rapid. A catheter introduced into the bladder, drew off about a teaspoonful of urine, which was reddish brown, from the presence of blood. On examination, the os uteri was found to be so far dilated as to indicate that labour had already made some progress, and it was thought advisable by Mr Sidey, who was present, and myself, to rupture the membranes and administer ergot. There were ineffectual labour pains at intervals during the night. Professor Simpson was asked to see her at six A.M., at which time she presented very much the appearance of a patient in the collapse stage of cholera, any attempt to alter her position caused acute pain in the left side. Dr S. performed craniotomy, and the infant, which had been dead for two days, was removed without difficulty. The patient died about seven A.M., thirty hours after the rigor.

On examination forty-eight hours after death, the spleen was found to be ruptured, a lacerated opening six inches in length, at some points upwards of an inch broad, and half an inch deep, had been followed by hæmorrhage into the peritoneum. The quantity of blood effused was not more than one or two ounces, including a thin clot which covered a large portion of the lacerated opening. The spleen itself was exceedingly firm, and at least three times its usual size. The liver also and kidneys were much congested and almost black, their peritoneal coat being of a dark slate colour.

In the thrombi which occur not unfrequently in labour in the external labia, sometimes the effused blood was confined and limited, as in the deep pelvic thrombi; and sometimes, again, as in Dr Brown's case, the blood in labial thrombi burst ultimately through the mucous and other coverings of the tumour, and escaped with more or less freedom from the surface of the thrombus. Both external and internal pelvic thrombi were essentially, of course, of the same pathological nature as hæmatoceles or apoplexies, seen elsewhere in the cellular tissue and other structures of the body, as the neck, encephalon, etc.

Dr Matthews Duncan was not satisfied with the explanation offered by Professor Simpson. The real difficulty presented by such cases is the question, why an artery bursts, or why hæmorrhage occurs? The mere statement that an artery bursts explains nothing. Recent inquiries by continental physicians had thrown much light on the whole question of hæmorrhages in the genital organs of the female, a subject which is now becoming much better understood. In the female the organs of generation were peculiarly liable to hæmorrhage, and this peculiarity, he believed, was the only explanation of the present case. The Society was much indebted to Dr Brown for having brought this fatal case under their notice, as in general, in cases of hæmorrhage connected with the unimpregnated female organs, a fatal event is very rare; the patient generally recovers. This, of course, depends on the seat of the sanguineous effusion, which may be either external or internal. When external, its chief danger was from its amount, or its long continuance. When internal, it generally had its seat in the cellular tissue of the various genital organs, and gave rise to tumours, abscesses or cysts, which were occasionally dangerous,—sometimes fatal. The hæmorrhage, when internal, rarely found its way to the peritoneum, where it would almost inevitably cause speedy death, as in Dr Brown's case, and as was often seen in ruptures of the sacs of extra-uterine pregnancies. Hæmatoceles are frequently found in the otherwise healthy ovarium, not only in the Graafian vesicles, but also in the substance of the ovary. It is not uncommon also to find that it has taken place into the cysts of diseased ovaries. Hæmorrhage may occur also rarely from the fallopian tubes, more often from the mucous membrane of the uterus. Dr Montgomery has recorded a fatal case in which the hæmorrhage took place from a thrombus about the size of an orange in the region of the uterine neck. The hæmorrhage also may take place into the broad ligaments; and in many cases of labour in which opportunity was afforded to Dr Duncan of making examination of the parts, he had seen that there was hæmorrhage into the cellular tissues surrounding the vagina. The occasional occurrence of thrombi of the vulva was well known to accoucheurs. All these hæmorrhages might occur during labour, but Dr D. thought they were equally frequent shortly after labour, or quite unconnected with it. He regarded Dr Brown's case as of much interest, from its being, as he thought, a very rare observation of sudden death from bleeding into the peritoneum from a spontaneous rupture on the surface of a hard tumour of the ovary. He believed that when this class of cases was fully investigated, we would be able to explain the origins of many tumours, abscesses, and cysts, that are at present obscure.

The preparation was remitted for examination, to a committee, to report at next meeting of the Society.

III. CASE OF FATTY DEGENERATION OF THE HEART. BY DR PAXTON OF KILMARNOCK.

(*This case will appear in the next number of the Journal.*)

The President remarked that he had last week seen a case of very sudden death. There had been no previous symptoms of disease, but all signs of life disappeared within five minutes of the attack. There had been no examination of the body.

IV. CASE OF TAPEWORM OCCURRING IN CONNECTION WITH THE EATING OF RAW PORK. BY DR W. T. GAIRDNER.

Dr Gairdner narrated the case of a girl, at present under his care in the Infirmary, which seemed to support the views of Siebold and Kuchenmeister, as to the transformation of the cysticercus cellulosæ, found in the hog and other domestic animals, into the *tænia solium.* Nine yards of the tape-worm had been expelled under the action of the shield-fern oil. On inquiry, the girl admitted that she had been in the habit of eating quantities of raw pork and butcher-meat generally. This was from a peculiar liking or inclination of her own, and was not a habit contracted in consequence of the example of others. In other respects her diet had been similar to that generally in use in her station in life in Scotland. It was well ascertained, that in Scotland the occurrence of tape-worm was rare as compared with some parts of England, and very rare when compared with some other European countries. It was not less unusual in Scotland to indulge in the eating of raw flesh, which practice was believed to be a frequent source of the production of tænia. The occurrence of tænia was very common in Germany, where the practice of eating raw ham was also prevalent. On the other hand, Dr G. had reason to believe that tænia was rare in Holland, where the eating of raw animal food is very unusual. Dr G. alluded to a case lately published by Dr Crighton (*Monthly Journal*, June 1855), in which he had been able to trace the occurrence of tænia solium to the practice of eating raw meat, a practice which was common among the Lancashire operatives. Dr G. was inclined to attribute the rarity of the occurrence of hydatids in Scotland, to the small proportion of animal food, and especially of ill-cooked animal food, used by the labouring classes. During Dr G.'s connection, as pathologist, with the Infirmary, he had opened not fewer than 1500 bodies, and he had never met with a single case of hydatids of the liver. Two cases had otherwise come under his notice ; but in his dissections at the Infirmary, he had never seen one instance of the occurrence of the acephalocyst. In the London hospitals a considerable number were known to occur every year.

V. CASES OF EXCISION OF THE KNEE JOINT, IN WHICH THE OPERATION WAS SUCCESSFUL. BY PETER BROTHERSTON, ESQ., SURGEON, ALLOA.

(*This paper will appear in the next nnmber of the Journal.*)

Dr Omond, who had taken the chair, vacated by the president, remarked that the excellent paper of Mr Brotherston must have brought to memory their late lamented colleague, Dr Richard Mackenzie, who was wont so ably to advocate and defend the operation for excision of the knee joint.

Dr John Struthers was of opinion, that the operation of excision of the knee joint had been fully discussed, so far as argument could go ; everything necessary to be said for or against the operation had been said, and cases such as those given by Mr Brotherston were what was now wanted. He was happy to notice that a surgeon in the country, notwithstanding all the difficulties thereby implied, had the spirit to undertake, and the ability successfully to execute such important operations.

VI. CASE OF ANEURISM UNSUCCESSFULLY TREATED BY COMPRESSION. BY PROFESSOR MILLER.

(*This paper is published in the present number of the Journal.*

The *Chairman* said, that he thought that the terms, "unsuccessfully treated," were not strictly applicable to the case as detailed by Mr Miller, as the compression seemed to be productive of good results. The paper opened up a large subject for discussion.

Dr John Struthers could not but admire the perseverance of Mr Miller in giving the treatment of aneurism by compression a further trial, and his candour in bringing forward cases in which it had proved unsuccessful. Time would not permit him to enter fully into the subject; but he would offer a few remarks on the views presented by Mr Miller. In the first place, Mr Miller had spoken of compression as being attended with little suffering. Now, it was well known, or generally understood, that there was usually a great deal. He was also disposed to question whether there was any advantage to result from confining a patient for a series of weeks in an hospital. In the country, or other healthy situation, it might be continued without any injurious consequences to the general health; but in an hospital he believed it was better to have recourse to operative proceedings on a patient, after a residence of a few days, than after a few weeks or months. This, however, was but a secondary point. Professor Miller has not spoken of the advantages of the opposite mode of treatment—that by ligature. It was represented as attended with great danger; but it is not so, as the facts of the case prove. For many years there has not been one unsuccessful cure in which the ligature was employed; while not one of the attempts at cure by compression in Edinburgh had been successful. Compression has not received above half a dozen trials in Edinburgh; but these had not supplied any evidence in favour of that mode of treatment. In Glasgow he had lately seen a case in which it had been patiently tried also without any good result; and the same impression of its value seemed to be there entertained as was general among the profession in Edinburgh.

It ought to be remembered, that the dangers attendant upon the operation by ligature had been very much diminished since the importance of due care in the dissection of the vessel had been inculcated, especially by Professor Syme. The old mode of procedure itself was the chief source of danger from the extensive exposure of the coats of the vessel which was practised. A common rule with the older surgeons was to clean the artery as completely as possible, and to pass the handle of the scalpel below it before passing the needle; and Scarpa, in giving directions as to the dissection of the vessels, says that the surgeon was to pass his *thumb* below the artery, unless he had very large thumbs, in which case he was to pass his forefinger instead. Now this involved the laying completely bare from an inch and a half to two inches of the vessel. It was only in comparatively recent times that surgeons had recognised the importance of careful manipulation in the later stages of the operation as determining its ultimate success. The result has been very much to diminish the danger of the proceeding. Other dangers also attended the operation from the carelessness of the older surgeons, and which are not now likely to be incurred. It was known that John Hunter himself, in his first operation, had included the vein with the artery in the ligature. In applying the ligature to the patient who was the subject of this paper, an operation in which Dr Struthers had assisted Professor Miller, the parts were very little disturbed—the textures were in a perfectly healthy condition—there was no thickening or condensation of the parts from the pressure, which had been continued for two months. The operation, at the present time, was in itself a mere trifle when compared with the protracted suffering from continued compression.

Professor Miller replied, that Dr Struthers had over-stated the amount of suffering attendant upon compression. There need be none; those whose irritability is such as to render the necessary restraint intolerable, are not proper subjects for the employment of this mode of treatment. It is not the intention of the surgeon to apply such an amount of pressure as to stop the circulation through the diseased vessel, but only to moderate the force of the circulation—to reduce it to half-force, as it were; and it is only to be continued for a few hours each day. All this may amount to inconvenience, but it cannot be called suffering. He differed also with Dr Struthers as to the importance of prolonged hospital preparation. His old master, Mr Liston, in the earlier part of his career, was always keen for operating on his cases of stone as soon as possible after their admission to the hospital. This he did from the belief that the patient soon began to droop, and get into a condition less favourable to the success of the operation. On this point, however, he subsequently changed his mind, and Professor Miller was decidedly of opinion that the dangers of the operation were increased by its performance while the patient was undergoing the change from his ordinary habits to hospital life. He would rather choose the practice of an American operator, who attributed his success in lithotomy to his long-continued process of preparation, which he had been accustomed to prolong for several weeks. It was unnecessary to enumerate the advantages attendant upon having the patient in the hospital, and under the eye of the surgeon. But they were summed up in this, that everything was under control, and regulations could be enforced to meet every necessity of the case. The changes, also, which a patient was known to undergo on admission into the hospital, could be watched. The very first day was preferable to the fifth, for at that time the patient was generally at the height of what may be called the acclimatizing change—a febrile disorder of system. There were three conditions through which a patient frequently passed on admission to the hospital, which it was of much importance for the surgeon to notice in choosing his time for operating—1st, There was the condition of rude health, in which the chief risk was from acute inflammatory attack. 2d, There was that feverish condition known as bed-fever, which might last for several days, and in which the chief risk was from asthenic inflammatory disease. If it was necessary to choose between these, the first period was unquestionably preferable to the second. The third period was that which followed the second, in which the patient had become acclimatized, and had settled down into the condition of quiet health. Everything was in favour of this period as the fittest for performing important operations. The patient was then less prone to inflammatory disease, and also to the more hazardous asthenic inflammation, which was very apt to follow operations performed during the period of feverish disorder. In regard to the want of success which had hitherto attended the practice of compression in Edinburgh, there was no room for surprise at this, inasmuch as every surgeon was tying, and he alone (Professor Miller) pressing. The tables might soon be turned, for it was quite possible that there might be a run of successful cases of treatment by compression; and notwithstanding Dr Struthers' remarks, untoward events were not new, even in very recent times, in connection with the application of the ligature. The nature of the operation was such, that there must be risks. One case had occurred (which Professor Miller had published in the *Association Journal*, May 19, 1854) in which gangrene had followed the application of the ligature, and in which amputation had to be performed. This case was complicated by the occurrence of an aneurism in the opposite leg. The artery was found to have been well enough tied, but the fall in the temperature of the limb was instantaneous. There never was the slightest reaction. Gangrene immediately set in on the application of the ligature to the artery. The risks of secondary hæmorrhage, also, are not to be overlooked. Under the old practice, this was a very frequent occurrence. Even when the ligature is thoroughly well applied, as in the present day, there is a certain amount of inevitable risk from having a diseased texture to deal with; for there would be no aneurism if there was no disease of the arterial tissues. There may be such a chronic degeneration of the coats of the vessel that there may be no exudation of lymph—there may be an a-plastic artery from which the ligature separates, leaving an open vessel, and the formidable complication of secondary hæmorrhage is to be contended with.

Mr Miller maintained that two formidable evils connected with the operation for aneurism were diminished by having recourse to the plan of treatment by compression, for a period extending over a few weeks. He did not advocate its continued employment for months; but there was the *juste milieu*, during which the compressor could be employed with most favourable results. This time could not in any sense be regarded as lost, even though it were ultimately necessary to have recourse to the needle. It was, upon the grounds stated in his paper, absolutely a gain.

The remarks of Dr Struthers in favour of the treatment by ligature did not produce any modification of the views enunciated in his paper. He was not surprised at the preference of the operation by ligature entertained by most surgeons: a certain grandeur of idea attached to the ligature, enabling, as it does, the surgeon all at once to accomplish a victory over the disease in question; but it should not be forgotten that risks sufficiently formidable must always attend its application. He had not presented this paper to the Society in the spirit of a partisan; but he felt that he was bound to try to effect a cure by pressure, a plan of treatment which he had endeavoured to show there was nothing to oppose. After a fair trial had been given, the needle could be employed, he believed, with much more likelihood of a successful result.

Dr Struthers said, that he was not till now aware that there had been a case in Edinburgh in which gangrene followed the application of ligature for the cure of aneurism. It was to be remembered, however, that gangrene had also followed the employment of the compressor. The case of gangrene, alluded to by Mr Miller, in his opinion, afforded additional evidence in favour of the ligature; there had been no hæmorrhage or untoward event, on the application of the ligature to the aneurism in the other limb. As to Mr Miller's remarks on the fever which patients had to encounter on admission to the hospital, he must confess that it was something entirely new to him to hear that hospital patients were liable to an admission fever of ten or fourteen days' duration.

Dr S. remarked, that the directions which were given for the performance of the operation were often not sufficiently precise. The opening of the sheath was confused with the cleaning of the artery. It was said, open the sheath to the smallest possible extent, and then pass the needle. Now, the sheath might be opened freely without disturbing or endangering the artery. It is convenient, after having slit the fascia lata freely up and down, to open the sheath to the extent of about three-fourths of an inch. This is generally done, whatever is said. Then came the delicate part of the operation, cleaning a small part of the artery from the investing cellular tissue within the sheath; taking care to avoid the vein, and not attempting to clean behind the artery, but only in front and on each side. He had found that generally about a fourth of an inch of the artery was thus denuded. Thus performed, the operation was a safe one, as proved by the uniform result of the operation in Edinburgh, while compression had not been even once successful.

Professor Miller replied, that he thought it of much importance that a large and free external incision should be made. The after-steps of the operation were thereby facilitated. He desired that his remarks should not be misunderstood, in his reference to the condition of patients on admission to the hospital. He did not speak of it as genuine fever, but merely as a state of feverish disturbance, which it was very necessary for the surgeon to avoid in proceeding to undertake operative measures.

As to the occurrence of gangrene from the application of the compressor. He was convinced that this could only happen from the compression having been applied at the wrong point, or improperly continued and controlled. The compressor ought to be applied upon the Hunterian principle, at some distance from the aneurism; and, under a moderate degree of care, gangrene need never occur. He however believed that there might be a more efficient means of compression devised. He was not fully satisfied with Carte's compressor, and would invite the attention of his professional brethren to this point. It was quite certain that the profession in general would not agree with the mode of determining the question at issue which had been followed in Edinburgh. The data derived from the surgical practice of this city were too limited; and, in strict fairness, the practice of surgeons elsewhere must be taken into account in the final settlement of this controversy. One of the besetting sins of the day was, to regard great questions, such as this, through a local and limited atmosphere; and that tendency must be strenuously opposed.

EDINBURGH OBSTETRICAL SOCIETY.

Dr *Keiller* reported the following cases :—

1. POLYPUS OF UTERUS.

Mrs B., æt. 53, had one miscarriage shortly after her marriage. Since then she has never had any signs of pregnancy. Has not been troubled with any leucorrhæal discharge. Died three hours after admission into the hospital.

Sectio.—The organs are in general free from the mark of old disease. The uterus is of normal form, and occupies its usual position. From the os externum there were two polypi, which may be felt on making a vaginal examination. On opening the uterus, the larger polypus is seen to be attached to the cervix a considerable way up, by an elongated pendicle. In the cavity of the cervix, there is another which does not reach to the outside. On the margin of the posterior lip of os, there is a sessile polypus. On the membrane of the fundus, there are several elevated patches of a blood-red colour. On the surface of the polypi, there were seen the openings of several of the mucous follicles, pouring out a large quantity of tenacious mucus, such as is usually found plugging up the os. Examined microscopically, the secretion of these crypts consists of delicate spheroidal cells imbedded in structureless matter. The elevated patches on the internal membrane of the body are composed of ovoidal nuclei, from the two ends of which, proceed delicate fibrous prolongations.

2. FIBROUS TUMOUR OF UTERUS.

Elizabeth S., æt. 60, was admitted into the Royal Infirmary, labouring under cardiac disease. This woman continued under treatment for three months, when she died of hydrothorax and general anasarca. On dissection, the whole of the serous membranes of the trunk were found in a dropsical state, the walls of the heart were greatly hypertrophied, and its cavities dilated. The aorta was also much dilated and roughened, and the mitral valve seemingly incompetent. Attached to the fundus of the uterus, by means of a narrow pedicle, a large fibrous tumour was found, seemingly in a very retrograde state on its surface.

Dr K. exhibited the uterus and attached tumour to the Society, and stated that, in this case, there had never been any iodine or bromine administered.

3. ENLARGEMENT OF SPLEEN MISTAKEN FOR OVARIAN DISEASE.

Dr *Keiller* mentioned the following case, which had been admitted into the Infirmary under his charge, and recommended as a case of ovarian disease :—In the abdomen, there was a large tumour occupying the left side, and reaching from under the ribs to the illiac fossa, the margin passing close by the umbilicus. Over this tumour there was great tenderness, and a distinct crepitus was to be felt, and rough friction sounds accompanied the respiratory motions.

This woman died the morning after her admission, apparently from syncope, she having risen out of bed in the nurse's absence, and on lying down again, died, almost immediately.

On dissection, the spleen was found enormously enlarged, as well as the liver. The lungs were in a state of grey hepatisation in the apices, the rest being bronchitic. The blood, on examination, was found to contain a great excess of white corpuscles, so much so, that they seemed almost to equal the red.

In this case, there had been cessation of the menses, twelve months prior to death. The tumour had been observed for ten months.

4. CANCER OF PERITONEUM AND UTERUS.

Jane G., admitted into the Royal Infirmary. Has been a woman of strong constitution, and has never suffered from ill health, excepting after delivery, when she had several severe floodings. She began to complain of pain in the lumbar region about two years ago; she then attributed it to rheumatism.

The pains have increased rapidly of late, and have extended themselves over the abdomen.

On admission, she was found suffering from ascites, which prevented a full examination being made of the abdominal viscera, however, a nodulated tumour could be made out in the lower part of the abdomen. On vaginal examination, the cervix was found indurated, fixed, and nodulated. She complained of no pain in making water, or when the bowels were moved. She was treated by stimulants, diuretics, catharctics, and the frequent use of opium, to obtain rest during night. She died a month after admission. About a week previous to her death, the fluid had increased to such an extent, as to impede the respiration very much, which it had not done formerly. Accordingly, it was deemed advisable, as a palliative measure, to draw off the fluid. It was found to be of a straw colour, without any inflammatory products. She experienced great relief after this, and continued tolerably comfortable, although it was evident by the tenderness and abdominal friction, that there was an attack of peritonitis, of a mild form.

On dissection, the lungs were emphysematous, the heart healthy, liver full of tubercles of cancer, each about the size of a shilling. The peritoneum was covered by granulations of cancerous matter. The whole of the intestines were glued together by cancerous adhesions. The uterus and ovaries were also extensively involved.

Dr Keiller exhibited the cancerous mass to the Society.

ON THE PRESENTATIONS OF DEAD CHILDREN.

Dr Matthews Duncan stated that he had recently been engaged in making experiments with a view to find out the cause of the frequent malpresentation of dead children. This fact of frequent malposition and malpresentation of dead children, had been too hastily assumed as a proof that the ordinary and favourable head-presentation was a vital action. The malposition of dead infants was thus held to demonstrate that the functions of the living child led to the frequent presentation of the head. The facts which Dr Duncan would adduce showed that gravitation had much more to do in causing presentations than some modern writers were inclined to admit; for his experiments proved, that the healthy non-putrid child floated in a fluid of its own specific gravity, obliquely, and with the head lowest, while a fœtus which had been some time dead generally floated in an exactly opposite position, or nearly so—namely, obliquely, with its head highest. The former, position of healthy infants, was just the position it had in the womb of a healthy woman in the erect or recumbent position on the back. The latter, position of dead infants, was the same reversed—that is, with the head highest instead of lowest. Of course, there were many other circumstances to be regarded in judging of the effect of this change in the specific gravity besides the change itself—for example, the period of pregnancy, and the quantity of liquor amnii, and the mobility of the child; also the shape and position ofthe uterus.

Dr Duncan then adduced a series of observations on the floating of children in a putrid or not putrid state, in a solution of salt of their own specific gravity, and the positions they took up in such solution. As to the cause of the great change indicated in these experiments, he could say little. It was known that one of the first alterations taking place in a recently-dead child, was the dissolution of the brain into a fluid mass. This was probably what produced the diminution in its specific gravity, and consequent buoying up in the fluid in his experiments, or in the uterus, when the change takes place.

Dr M. Duncan read the following case from Dr Harvey of Southampton:—

CASE OF PRESENTATION OF THE BLADDER IN LABOUR.

Mrs M——, æt. 28, was taken in labour of her first child on the evening of Tuesday the 4th July last, some weeks before the expected time of her delivery. She sent for me the same evening, when I found her complaining of pains in the lower part of the abdomen, both behind and in front, and likewise round the hips. She had an opiate given her, which had the effect of relieving, indeed of removing the pains, and procuring for her a comfortable night's rest.

The pains returned next morning. On examining her, per vaginam, the os uteri was found slightly dilated. In the evening the pains had become more decided and regular, and the os uteri more fully dilated. No bag of waters could be discovered, and the patient was not aware of its having broken. The presentation was ascertained negatively. It was not the head, but its real nature remained doubtful.

At 3 A.M. of the following day, the os uteri was pretty fully dilated, and the pains were good. The presentation, however, was still uncertain. It seemed impossible to doubt, that what had all the characters of feet could be aught else; but the limbs connected with them, besides being themselves extremely small and tiny, ended in what seemed certainly not a breech, and very exactly resembled the shoulder. No anus could be felt, nor organs of generation. The limbs were brought down, and proved to be the feet and lower extremities.

The pains continued vigorous, but the child descended very slowly till about 1 o'clock in the afternoon, after which the labour advanced steadily although still very slowly, till about 3 o'clock, when the entire fœtus was expelled by one strong pain.

Altogether, the labour occupied above 36 hours.

For some time before the delivery of the woman, and after the full dilatation of the os uteri, the presentation was as follows:—The front of the child was to the spine of the mother; the trochanters and head of the thigh bones, which were in connection with a bony surface of very limited extent, and (as before observed) very closely resembling the top of the shoulder, lay behind the pubis. Filling the hollow of the sacrum was the front of the abdomen, lying remarkably low down, and pressing on the perinæum, occupying besides, to a great extent, the cavity of the pelvis.

At the moment of delivery, and for some time previous to this, this abdominal mass, in the form and shape of a large round swelling, which was tense, elastic, and unyielding, filled up the whole outlet; the breech, or what appeared to be the breech, being pushed upwards behind the pubis. The mass in question passed through with extreme difficulty, and with corresponding anguish to the mother.

The child was still-born. On examining it, it was found that there were no buttocks, and that the bony pelvis was but imperfectly developed, small and insignificant. There was no anus, nor any trace of one. A projecting fold of skin, of a livid colour, occupied the site of the scrotum or labia, and had a shallow imperforate fissure in the centre of it.

The abdomen (speaking comparatively) was of enormous size, and was distended by what was manifestly fluid in its interior. It encroached upwards on the chest, which was preternaturally short and narrow. The child's neck was apparently wanting, and the head small, elongated, and livid, but not otherwise abnormal.

The general surface presented marks of incipient decomposition.

On laying open the abdomen, the urinary bladder was found occupying the greater part of its cavity. It formed a round or oval tumour, considerably larger than the average size of the fœtal head. Unfortunately, it was accidentally punctured, and, its contents escaping, neither the real nature nor the exact amount of the fluid it contained could be ascertained, but it had the colour and odour of urine; and, judging as well from the apparent capacity of the bladder as from what was seen to escape, the fluid might have amounted to about a pint and a half.

The bladder had no outlet, but the ureters entered in the usual way, and were pervious throughout. Moreover, the rectum also opened into it, but no indications of the presence of meconium were discovered in the bladder. The condition of the generative organs was not minutely inquired into, but on a cursory examination none could be seen, and the sex of the infant was not made out.

The striking feature in this case was the extreme difficulty with which the delivery was accomplished—a circumstance now manifestly referable to the unyielding nature of the fluid in the urinary bladder, which was actually the presenting part, and which, from the action of the uterus upon it, had to make its way by its broadest possible diameter.

RESULTS OF SIXTY-NINE CASES OF OVARIOTOMY.

Dr Simpson read the following extract from a letter he had just received from Dr Clay of Manchester:—

"In answer to your note, I now send the results of my operations up to the present date. I have just completed my sixty-ninth case, which is now (the tenth clear day from the operation) out of danger, and rapidly gaining strength. The tumour and its contents removed weighed forty-seven pounds; and to convince sceptics about adhesions, this last case adhered to the parietes at the umbilicus, by a broad patch four inches long by two broad; the sac also adhered to both diaphragm and stomach, and fibrous bands of lymph attached it to various parts of the intestines; a fold, also, of the omentum, was attached close to the pedicle, and yet this case has not had one really bad symptom.

"My cases now amount to sixty-nine since 1842. Of these, forty-eight have recovered, and twenty-one have died. As I am of opinion that the results of isolated cases (by different individuals) should not be included in statistics, and that the cases of one person that has operated largely should be considered by themselves, I offer no apology for omitting the mention of any cases but my own in this note. Taking my operations from the first, and dividing them as they have occurred progressively, I find, the first 20 cases, 8 died; second 20 cases, 6 died; and third 29 cases, 7 died.

"Thus, the first 20 presented a mortality of 1 in $2\frac{1}{2}$; the second 20, 1 in $3\frac{1}{3}$; the last 29, 1 in $4\frac{1}{7}$ ($2\frac{1}{2}$ in 10). Here you will perceive a gradual lowering in the rate of mortality, which now presents a result I at one time scarcely ever anticipated; and I am yet in hopes of placing this formidable operation on a still better footing; but surely no one can deny its legitimacy and utility with the results above, even if it never improved more than at present."

SECOND FŒTATION.

Dr Priestley brought before the notice of the Society a case of secondary fœtation which had lately occurred in a poor patient, who had sought advice at Dr Simpson's.

The patient, æt. 18, had aborted at the third month, apparently the result of a kick which she had received in the abdomen. From what he could learn, there was no evidence of the secundines being passed at the time, but a brown discharge, with small masses, oozed from the vagina, for two or three weeks after. When Dr Priestley saw her at the end of this time, she believed the placenta had not been removed, and that she was suffering from its retention. On examination, the vagina was relaxed, the os uteri patent, and some colourless discharge was still present. The body of the uterus was large, and it was at first intended to introduce a sponge tent, and extract the placenta, but on a more careful examination, ballottement was distinctly perceptible, and this was not attempted. After this, pregnancy went on to the ninth month from the first calculation, and the patient was delivered of a living child. The placenta of this second fœtus was complete, and exhibited no evidence of duplicity. Mr Chisholm attended her on her confinement, and had been kind enough to draw up notes of the case.

Dr Priestley observed that some such cases had before been brought before the notice of the Society, and this particular one was similar to Mde. Depuis', described by M. Velpeau. He considered the term Secondary Fœtation a proper appellation for such cases, as super-fœtation more strictly applied to cases where a second impregnation was supposed to have taken place at an interval after the first. The occurrence of such cases he regarded as interesting not only physiologically, but important medico-legally, and some of the members of the Society may remember that, some time ago, Dr Dewar of Dunfermline was evidence on a case where it was of great moment to establish the possibility of such secondary fœtation.

A case was related where the fœtus and placenta came away about the 4½ months, and rather more than four months after, the woman was delivered of a child, apparently at full time. Also another case where the woman was delivered, at what was supposed to be the full time, of one child, and six weeks afterwards she was delivered of another.

Dr Simpson said that it might be a question for discussion, whether to leave these cases to nature, or to interfere and deliver, as recommended by Dr Hamilton, in a case occurring in the Maternity Hospital. Dr Simpson also mentioned that he had seen a case of twins, where the sister was white and the brother black like a negro, the reputed father being white.

DEATH OF JOHN BARLOW.

It is our painful duty to announce the death of John Barlow, Professor of Anatomy and Physiology in the Veterinary College, Edinburgh. This event took place on the morning of the 29th January, at No. 1, Pilrig Street. About a month ago, he was seized with what seemed a rheumatic attack, which gradually assumed the symptoms of a severe spinal affection. After some weeks of intense suffering, his system yielded to the pressure of excruciating pain, and the virulence of the nervous attack, which the ablest medical skill failed in subduing.

John Barlow was born on the 20th September 1815, at the Oak Farm, Chawley, Cheshire, which had been in the possession of the family for about 200 years. He early evinced a strong love for animals, and the cows of his father's dairy became more particularly the objects of his special study. This youthful predilection doubtless influenced his choice of a profession, and tended to induce him to devote much of his time to the obtaining of a knowledge of the diseases which affect the domesticated animals. In 1842, Mr Barlow joined the Edinburgh Veterinary College as a student—no doubt attracted by the reputation of that Veterinary School, and its distinguished founder, Professor Dick. After attending two sessions at the College, he obtained his diploma, having been the most distinguished student of the course. The following session he acted as demonstrator, and in 1845 was appointed assistant-Professor and Lecturer on Zootomy—including the Anatomy and Physiology of the domesticated animals.

For several years Mr Barlow had been engaged in a work upon the Anatomy of the Horse, and the amount of labour he undertook in carrying out investigations bearing on structural formation, made him in an eminent degree an accomplished microscopist. His career has closed before the completion of a work so much required by the professional student.

John Barlow was a member of the Society of Friends. His career has ever been marked by the principles which distinguished that body of professing Christians. Modest, gentle, and unassuming in his manners, he obtained the respect of all who came in contact with him. Moral worth, and a delicate susceptibility towards the feelings of others, secured to him the warm attachment of a circle of intimate friends.

By all the leading medical men in Edinburgh Mr Barlow was much respected, and as a member of the Physiological Society, whose transactions he enriched by many interesting observations, he always gladly aided his younger scientific brethren by his advice and active co-operation. So lately as July 1855, Mr Barlow contributed to this *Journal* an able memoir of his friend Dr Martin

Barry; a duty which, in the midst of pressing engagements, he discharged with singular fidelity and promptitude. We here most willingly renew our obligations, expressing, at the same time, our deep regret that Edinburgh should have lost such a gifted as well as honest and upright citizen.

CONVERSAZIONE OF THE ROYAL COLLEGE OF SURGEONS.

On Friday evening, January 25th, a conversazione was given by the President and Fellows of the Royal College of Surgeons in their hall. The medical profession in all its departments was well represented, the hall being nearly filled. A considerable number of strangers also were present by invitation, among whom we observed the Rev. Dr Grant of St Mary's, Professors Blackie, Simpson, Balfour, Bennett, and Pillans, Mr Robert Chambers, Mr J. F. Macfarlane, etc.

The *President* (Dr Andrew Wood) opened the meeting by expressing his satisfaction at seeing so large an attendance at this first conversazione of the College. It was intended that this should be the commencement of a long series of such meetings. It was a revival of some meetings which had formerly been held amongst the surgeons, which had, unfortunately, been abandoned. It would be of the greatest good to the surgeons to have regular opportunities not only of meeting each other, but of meeting with gentlemen of other professions. The President concluded by introducing Dr William Sanders, the Curator of the Museum, who would now read a paper on the Cell Theory.

Dr Sanders stated that, within the brief limits of one lecture, all that he would attempt to do was, not to prove the cell theory, but to explain it, and he could not be expected to quote authorities. The Doctor then proceeded to explain the principle of the cell theory first propounded by Schwann—viz., that all organised beings, plants, and animals alike, are formed from the same elementary parts, of certain definite forms and properties, and which are termed cells. However different, therefore, in their perfect or complete condition, plants and animals have a common form of origin, and form the same fundamental law of development. The process of continual renovation or "rejuvenescena," both in the life of individuals, and in the perpetuation of the species, stands in close relation to all development, and is essentially similar in animals and in plants. This unity, pervading and underlying its infinite diversity of vegetable and animal existence, affords a marvellous evidence, and has all the force of a scientific demonstration, of the unity of plan of created existence, and of the power and wisdom of the Creator.

Dr Sanders' lecture, which was distinguished by its perspicuity, drew forth repeated marks of approbation from the audience. The whole lecture was illustrated by a series of coloured diagrams, admirably descriptive of the cell theory both in plants and animals.

On the conclusion of the lecture, *Professor Simpson,* as one of the strangers present, begged to propose the thanks of the meeting to Dr Sanders for his able lecture, his most lucid development of the cell theory—the highest generalisation of philosophical anatomy. From the lecture which they had just heard, they would all be convinced that Dr Sanders was destined to fill a very high position in the profession, either here or in some other sphere. He was rejoiced to hear from their President that this was but the first of a series of such meetings; he hoped it would be a series of serieses. Formerly it was thought that medical men could not meet to drown their differences except over a bottle of wine; but their excellent teetotal President had shown them that they might benefit their common profession by meeting together and drinking not wine, but drinking in knowledge.

After the business in the hall was concluded, the company retired to the refreshment-room and partook of tea and coffee.

NEW MEDICAL BILL.

A Bill has been introduced into the House of Commons by Mr Headlam, Mr Craufurd, and Mr Brady, to alter and amend the laws regarding the medical profession.

It is proposed to establish a council, to be styled "The Medical Council of the United Kingdom," and shall consist of *one* person chosen, from time to time, by each of the following bodies:—The Universities of Oxford, Cambridge, London, Edinburgh, Glasgow, Aberdeen, St Andrews, Dublin; The Queen's University in Ireland; the College of Physicians of England; the College of Surgeons of England; the College of Physicians of Edinburgh; the College of Surgeons of Edinburgh; the Faculty of Glasgow; the College of Physicians of Ireland; the College of Surgeons of Ireland; and *eight* persons to be elected as "Representative Members." The members for the Colleges shall hold office for three years and may be re-elected. The Home Secretary is, in the first instance, to appoint 8 representative members—4 for England, 2 for Scotland, and 2 for Ireland; and they shall hold office till 1st June 185 ; after that period they are to be elected —4 for England, 2 for Scotland, and 2 for Ireland—by those persons whose names shall appear in the last printed Medical Register for these countries (as afterwards explained), and to remain in office for three years.

The Medical Council shall meet and elect a president, treasurer, secretary, etc.; and within *three* months after their first meeting, appoint examiners in London, Edinburgh, and Dublin, respectively to examine in general education after a scheme to be approved by the Medical Council; such examiners to receive such remuneration as the Medical Council shall think fit; and no person, other than a graduate in some University of the United Kingdom, or in some foreign University approved by the Medical Council, shall be entitled to present himself before any college, unless he shall have received a certificate from the examiners, for which he shall pay a fee of *two pounds.*

The Secretary of State is to appoint a medical registrar and clerks, who shall, up to the 1st December 1856, register in a "Physicians' Register, 1856," on payment of a fee of L.1, the name and place of abode and a description of the testimonials, of every physician who shall apply to be registered, and who shall be at least *twenty-four* years of age, and who, prior to the *commencement of the Act* (1st August next), shall have taken a degree in medicine in any English, Irish, or Scotch University, or who shall produce his diploma or license, or shall produce a duly attested certificate, or such other proof as shall be satisfactory to the said medical registrar, of his having obtained a diploma or license to practise as a physician, dated prior to 1*st December* 1856, granted by the Royal College of Physicians of London; the Royal College of Physicians of Edinburgh; the King's and Queen's College of Physicians of Ireland; or the Archbishop of Canterbury; and he shall also register in "The Surgeons' Register, 1856," on payment of the same fee, the name, etc., of every surgeon and apothecary with a diploma, certificate, or license from the Royal College of Surgeons of England, the Royal College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, the Royal College of Surgeons of Dublin, or the Society of Apothecaries in London; he shall also register every person who shall apply for that purpose, and sign a declaration that he has been practising medicine in England and Wales prior to 1st August 1815, and every surgeon and assistant-surgeon of the army and navy appointed prior to that date. After 1st December 1856, the fee for registration of every physician and surgeon is L.10. The "Medical Register" shall be regularly published.

After the 1st December 1856, the medical registrar shall require proof, from those applying to be registered, as to their having been properly examined and received letters-testimonial from a College of Physicians or Surgeons, or to the said Faculty.

The Colleges and Faculty shall, when required by the Medical Council, lay before the Council a scheme of the course of study and particulars of the examination to be gone through by all persons applying to such Colleges, respectively, for letters-testimonial as physicians or surgeons, and of the fees to be taken for examination and admission into the said several Colleges respectively; and the Medical Council shall make such changes in the schemes as to them shall seem expedient; and the Medical Council shall procure, as far as is practicable, that the qualifications and fees for the said testimonials shall be uniform throughout the kingdom; the course of study, in every scheme, shall be of at least five years' duration.

The Medical Council shall cause to be published, under their direction and authority, a book containing a list of medicines and compounds, and the manner of preparing them, together with the true weights and measures by which they are to be prepared and mixed, and containing such other matter and things relating thereto, as the Medical Council shall think fit, to be called "The British Pharmacopœia;" and the Medical Council shall alter, amend and cause to be republished, such Pharmacopœia as often as they shall deem it necessary.

Every person registered under this Act shall be entitled to demand, and recover, in any court of law, with full costs of suit, reasonable charges for medical or surgical aid, advice, visits and medicine rendered or supplied by him to his patients. None but registered persons may recover their charges.

No person not registered under the Act shall be capable of holding any appointment in any part of the United Kingdom in the capacity of a medical officer of health or of a physician, surgeon, or other medical officer, in the military or naval service, or in any hospital, infirmary, dispensary, lunatic or other asylum, lying-in hospital, jail, penitentiary, house of correction, house of industry, parochial or union workhouse or poorhouse, parish union, or other public establishment, body, or institution, or to any friendly or other society for affording mutual relief in sickness, infirmity, or old age.

There are penalties for registering on false representation, etc.

THE EDINBURGH PROFESSORSHIP OF MILITARY SURGERY.

(*Letter from Professor Syme to Lord Panmure.*)

Edinburgh, Jan. 10, 1856.

My Lord,—The Chair of Military Surgery in the University of Edinburgh being now vacant, I beg to address your lordship with regard to the expediency of transferring it to some other field better fitted for the accomplishment of its objects. The circumstances under which the Chair was established by the Crown in 1806 were so entirely different from those now existing, that the propriety of its foundation would not be called in question by entertaining the proposal which I venture to submit for consideration, and which, from long experience in medical education, I feel assured, if carried into effect, would tend greatly to benefit the public service.

At the date just mentioned, (1806) there was no regular course of systematic lectures on surgery delivered in Edinburgh, and the first Professor of Military Surgery, Dr John Thomson, supplied this deficiency by giving precisely the same sort of instruction which is now afforded by surgical teachers. The second professor, Sir George Ballingall, who was appointed in 1823, also gave his course so much of an ordinary surgical character, that the Edinburgh College of Surgeons accepted and still accept it as an equivalent for one of the two courses of systematic surgery which they require from candidates for their diploma. But since a chair of systematic surgery was instituted in the University (1831), there has been no occasion for any such supplemental instruction; and it is now everywhere acknowledged that, in so far as the public service is concerned, the duties of the military chair should be of a wholly different kind.

The principle of surgery, in regard to both its science and its art, are the same at home and abroad, whether the patient be subject to military discipline or retains his civil liberty, and whether he is treated under the canvass of a field-tent, or in the chamber of a palace. Young men preparing for military or naval medical service, in so far therefore, do not require professional instruction of a different kind from that of those who have civil practice in view; but the variety of climate, employment, and position, to which troops and ships' companies are liable to be exposed, demand, for duly discharging the duties necessary to protect from disease, as well as to remedy it, a large amount of additional knowledge, theoretical as well as practical, which would be in a great measure useless for the ordinary course of practice. It is now universally admitted that the proper duty of such a chair as the one at present vacant should be, to supply all the information that can contribute to promoting the acquisition of so essential a qualification, and that the professor, instead of spending his time in lopping off legs and arms, or discoursing about Ambrose Paré and the history of gun-shot wounds, should explain the arrangements of hospitals, the position of camps, the effects of diet and exposure, the admission of recruits, the invaliding of soldiers, the management of wounded men, the keeping of records, the diseases of climates and seasons, with their prevention and remedy, and all the other peculiarities of a military and naval life, in health as well as in sickness.

But how is the Professor of Military Surgery, sitting in a lecture-room in the University of Edinburgh, to discharge efficiently this important and multifarious duty? He may read extracts from books, or relate the results of his own experience, so as to mention everything that his hearers ought to know, but can hardly enable them either to understand or to recollect what he wishes to inculcate. It is only when an impression is made upon the eye that oral instruction, in regard to such matters, produces a lasting impression; and unless the student can be shown either the things spoken of, or some evidence of their operation, little will be retained of what is told him, however important may be its bearing upon his professional life.

Now, if the chair were connected with a great military hospital, all the requisites for efficient instruction would be at once provided. The arrangements for the sick would no longer be a subject for description or imagination, but become one of demonstration. The recording of cases, and other routine duties, instead of being matters of explanation, would afford daily employment for the pupils, who, having completed their education, and obtained their titles to practise, would be ready at once to undertake the performance of such services. The professor, although not able to produce a tropical climate, could exhibit its effects upon the patients under treatment; and their histories, whether related to the class or gathered from private conversation, could not fail to deepen the impression thus made by him. The victims of heat, cold, and moisture, or of an unwholesome atmosphere, improper food, and imperfect clothing, would equally exemplify the effects of such unhealthy influences, and no condition of the soldier's life be without its appropriate illustration. Reviews might be conducted so as to simulate the casualties of actual warfare, and show how wounded men could be best carried from the field, together with the extemporaneous provisions most suitable for their comfort and recovery. In short, the few months which it has been the custom for medical officers, upon their entrance into the army, to spend at Chatham, might be made to comprehend an instructive epitome or rehearsal of their future service.

In conclusion, I beg to assure your lordship that, in offering this suggestion, my only objects are, to free the school with which I am connected from a useless incumbrance, and to promote the well-being of a service in which many of my old pupils and most esteemed friends are engaged.—I have the honour to be, my Lord, your Lordship's most obedient servant,

James Syme.

The Right Hon. Lord Panmure,
Secretary of State for the War Department.

ON THE IMPROPRIETY OF APPLYING THE TERM LEUCHEMIA (WHITE BLOOD) TO RED BLOOD, CONTAINING AN EXCESS OF COLOURLESS CORPUSCLES.

To the Editor of the Edinburgh Medical Journal.

Sir,—In my work on Leucocythemia, or white cell blood, I pointed out (as Dr Parkes, indeed, had done before me) how objectionable it was to call blood white, when it was really red, and said that leuchemia would be more properly applied to the fatty chylous blood, which had previously been described. Hence why I proposed a more correct term for the faulty expression invented by Professor Virchow. A singular proof of the correctness of my views on this matter, is to be found in a discussion which took place in the Academy of Medicine at Paris, on the 29th of January last. On that occasion, M. Blache read a case to the Academy, which he called one of "*Splenic leuchemia of an hæmorrhagic form*," and in which the microscopical and chemical examination of the blood is thus given by MM. Ch. Robin and Isambert :—

"The blood was the colour of wine lees, analogous to that of the splenic pulp ; the clot was soft and diffluent. The serum contained a number of fatty granules, that gave it a milky appearance. The serum of the defibrinized blood gave, on repose, a creamy layer, which swam above the globules. The red globules were twice less numerous than the white ones. It was not the proportion of white globules, or *leucocytes*, properly so called, which were increased, but that of the globulins, which are to the leucocytes, what free nuclei are to cells in general. The chemical analysis demonstrated a notable augmentation of the proportion of water ; a diminution of the solid matters of the serum ; a still greater diminution of the red globules ; a considerable augmentation of the fatty matters ; and a diminution of the fibrin."

In the discussion which followed, MM. Caventou, Lecanu, Chatin, Collineau, Gibert, and Guerard, took part, maintaining that the discovery of white blood belonged neither to the English nor to the Germans, neither to Professor Bennett nor to Professor Virchow, inasmuch as they had met with similar cases previous to 1845. And so they had, and so had Drs Traill and Christison of this University. The fact is, that M. Blache's case was one of fatty or chylous blood, and bears no relation whatever to that new pathological state discovered by me on the 19th of March 1845, and which was first seen and confirmed by Virchow on the 1st of August following. It is true, he gave it the name of white blood, an erroneous term, that has evidently thrown the French Academy into considerable confusion, as it is likely to do the pathologists of other countries, unless they adopt the more correct name of Leucocythemia, which I first proposed for the disease, December 18th, 1850.—(See Medico-Chir. Society's Report for that date, *Edinburgh Monthly Journal of Medicine*, February 1851).—I have the honour to be, your obedient servant,

J. Hughes Bennett.

PROJECTED BIBLIOGRAPHY OF CROUP. BY CHARLES WILSON, M.D., FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, EDINBURGH.

It is the wish of the writer to compile, on an early occasion, a Bibliographical History of the disease of Croup, upon which he is anxious to bestow all the completeness and comprehensiveness which it is possible for him to attain, so as to trace the progress of observation and of opinion, and illustrate the development of our knowledge upon the subject, throughout the various periods, as well as the separate fields, of medical literature. The materials for the institution of such an inquiry, in the amplitude he desires to possess them, are, however, neither at his immediate disposal, nor to be found in any public library or libraries, to which he can command access. The task he contemplates, therefore, must remain unaccomplished, or be unduly narrowed in its scope, if he cannot engage the friendly support of others in the advancement and success of his labours.

It has occurred to him, that there may be many readers of this Journal throughout the different countries of Europe, or beyond its limits, who, for the sake of their interest in the subject of a disease so remarkable as Croup, or because of their zeal for the diffusion of a knowledge of their native literature, or from their mere solicitude for the progress of science, as the aggregate of the offerings of the many for the advantage of the whole, would willingly lend their aid to promote his object. From the extent and facility of our intercourse with France and Germany, and the United States of America, the medical literature of these countries is generally familiarly known, or, at least, easily accessible; though, it is scarcely necessary to add, any information educed from it, bearing reference upon the selected theme of the writer, would be thankfully appreciated. But that of Holland, Denmark, Norway, Sweden, Italy, and Spain is more scantily circulated amongst us, and thus, however eminently entitled to consideration, remains comparatively unexplored. Yet there is probably not one of these languages which does not contain excellent monographs, or original comments, or scattered notices, or observations, on Croup, whether embodied in its special, its systematic, or its periodical literature, such as are not quoted in our ordinary treatises, or do not even appear in our catalogues or lists of authorities, or are there only by name, and which are thus, in so far, excluded from the common gleaning ground of science.

Should, then, any physician, a native of any of these countries, or skilled in their medical literature, observe this notice, it is hoped that he may suffer the occasion to excuse the peculiarity of its form, and kindly transmit to the writer *a list of the original sources of information on Croup*, in one or other, or any of these several languages; or in Latin, or whatever other language, if issued from a native press; or if deduced from experience in Russia, published in any other than the Russian language. Should he add suggestions as to the channels through which they may be reached, he will confer a farther obligation. Either favour will be received with gratitude, and converted to use to the utmost of the writer's means and capacity.

EDINBURGH, 20*th Feb.* 1856.

MEMORANDUM AS TO THE PAY AND ALLOWANCES OF MEDICAL OFFICERS IN THE EAST-INDIA COMPANY'S SERVICE.—Pay and allowances, and time of service, commence from date of arrival at the Presidency to which they are appointed. On first arrival, and whilst attached to the General Hospital at the Presidency, they are granted pay and allowances (inclusive of quarters valued at Rs. 25 per month), amounting per month to Rs. 220. When posted to do duty with corps, they receive the following allowances:—

		Within 200 miles of the Presidency.			Beyond 200 miles from the Presidency.		
			R.	A.		R.	A.
Including conveyance allowance of Rs. 30 a month.	Horse Artillery and Cavalry..........	per Mo.	364	6 ...	per Mo.	395	4
	Foot Artillery......	„	264	4 ...	„	295	12
	Infantry............	„	255	12 ...	„	286	10

When in charge of corps as assistant-surgeons, having passed the prescribed examination in native languages:—

		Within 200 miles of the Presidency.			Beyond 200 miles from the Presidency.		
			R.	A.		R.	A.
Including a Staff Salary of Rs. 165 a month.	Horse Artillery and Cavalry..........	per Mo.	499	6 ...	per Mo.	530	4
	Foot Artillery......	„	399	4 ...	„	430	12
	Infantry............	„	390	12 ...	„	421	10

When in charge of corps as surgeons, having passed the prescribed examination in native languages:—

		Within 200 miles of the Presidency.				Beyond 200 miles from the Presidency.			
			R.	A.	P.		R.	A.	P.
Including a Staff Salary of Rs. 300 a month.	Horse Artillery and Cavalry..........	per Mo.	821	11	4	per Mo.	863	0	4
	Foot Artillery......	„	692	5	0	„	733	10	0
	Infantry.............	„	674	1	0	„	715	6	0

Surgeons and assistant-surgeons of European corps are granted, in addition, an allowance of Rs. 25 per month for every 100 Europeans under their charge. Surgical instruments are provided by Government.

Furloughs.

On Private Affairs.—For 2 years, after 10 years' service in India, with pay, if a surgeon, 10s. 6d. a day; if an assistant-surgeon, 6s. 6d. a day. A second furlough for 2 years, after expiration of 10 years, from date of return to duty from first furlough, with pay as above.

On Sick Certificate.—For 18 months, with Indian pay and allowances for 6 months. For the remaining time with furlough pay as above. Time may be extended, on renewed medical certificate, with pay, for 3 years in the whole. Assistant-surgeons returning to England, on sick certificate, receive Rs. 1,200 passage-money.

Retiring Pensions.

After 17 years' service,	L.191	per annum.	After 29 years' service,	L.365	per annum.
„ 21 „	250	„	„ 32 „	500	„
„ 25 „	300	„	„ 35 „	700	„

The full time of service must be completed in each case. Out of that time, leaves of absence in India or Europe, or elsewhere, to the extent of 1 year and 8 months in 17 years, 2 years in 20 years, 3 years in 25 years, 4 years in 30 years, will be allowed to count as service. Medical officers compelled to quit the service by ill-health, before they are entitled to retiring pensions as above, may retire on the following rates of pension, viz.:—

Assistant-surgeons, after 6 years' service in India, ...	L. 54	15	per annum.
„ 10 „ „	73	0	
And if they have attained the rank of surgeon, ...	127	15	„

Assistant-surgeons compelled to quit the service by wounds received in action, or by ill-health contracted on duty, after 3 years' service in India, are permitted to retire on L.73 per annum.

Widows' Pensions from Lord Clive's Fund.

Widow of a member of the Medical Board, L.114, 1s. 3d. per annum, on declaration that the deceased officer was not possessed of, or entitled to, the sum of L.4000

Widow of a Superintending Surgeon,	L.91	5	0 . . .	3000
„ Surgeon, . . .	45	12	6 . . .	2000
„ Assistant-surgeon, . .	22	16	3 . . .	1000

Note.—A rupee of 16 annas is equal to 1s. $10\frac{1}{4}$d.

DEVIATIONS FROM THE LAWS OF MORTALITY.

Professor Buchanan, M.D., read a paper at the Meeting of the British Association in Glasgow, on the "Physiological Law of Mortality, and on certain deviations from it, observed about the commencement of adult life." The object of this paper was to direct attention to certain irregularities that took place in mortality at 23 or 24 years of age. The conclusion he drew was, that the security of human life is greatest at the age of thirteen years, and it becomes less secure as it approaches to either extremity. He explained the normal law of mortality, as connected with physiological causes.

Of the numbers that died during the first month, upwards of one half of them died during the first week of that month, while again there was 21·9 per cent. died of those born in the month. The rates of mortality run:—1st week, 240·1; second week, 80·0; third week, 35·3; fourth week, 21·9; sixth week, 16·2; second half year, 11·4; third half year, 10·7; fourth half year, 7·7; third year, 3·3; sixth year, 1·423; thirteenth year, ·500. It was found that at 13 years in the Government annuities, the proportion was ·5742; at 23, 1·5074; at 34, 1·1707; at 48, 1·4870. In friendly societies, the proportion was 13·6039; at 23, ·8850; at 24, 1·3000; at 48, 2·1459. Dr Buchanan referred at some length to the effect different positions in society had on the mortality of the people, showing the deviation that took place at different epochs in different circumstances. It was found that the mortality of the agricultural labourers was smaller than of any other class in society, arguing that labour in the open air was the best occupation for the security of life.

NOTICE TO CONTRIBUTORS.

As it is of the utmost consequence that the Journal should punctually be ready for delivery in London on Magazine day (the last day of each month), we have to intimate to Contributors that, generally, we cannot guarantee the insertion of any article received after the 15th; and in no case, however urgent, can any paper be inserted, if put into the Editor's hands beyond the 20th of any month.

We would also impress on our friends the importance of brevity, as extended or divided communications are less likely to attract the attention of the reader, than if concentrated into one article of moderate dimensions.

PUBLICATIONS RECEIVED.

Chimie appliquée à la Physiologie et à la Thérapeutique. Par M. le Docteur Mialhe, Pharmacien de l'Empereur, etc., etc. 8vo. Paris, 1856.

City of New York Inspector's Report, 1855. 8vo.

Unsoundness of Mind, in its Medical and Legal Considerations. By J. Hume Williams, M.D. 8vo. London.

Trees and their Nature: or the Bud and its Attributes. In a Series of Letters to his Sons. By A. Harvey, M.D. 8vo. London.

On the Advancement of Midwifery Education in Scotland: a Letter addressed to Dr Andrew Wood, President of the Royal College of Surgeons. By J. Matthews Duncan, M.D., F.R.C.P.E. Pp. 15.

On Personal and Domestic Hygiene. Addressed to the Working Classes. By Lionel J. Beale, Surgeon. Pp. 23. London.

Elm Tents for the Dilatation of the Cervix Uteri. By Horatio R. Storer, M.D., Physician to the Boston Lying-in-Hospital. Pp. 8. Reprint.

On Cystic Entozoa in the Human Kidney. By T. Herbert Barker, M.D., F.R.C.S. Pp. 18. London. Reprint.

Tenth Annual Report of the Devon Lunatic Asylum, 1855.

Report of the Trial of Dr George Lillie Smith and R. Campbell for Wilful Fire-raising. By Alexander Forbes Irvine, Advocate. Pp. 64.

Reply to Dr M'Gilchrist's "Remarks" on Professor Bennett's Introductory Lectur, "The Present State of the Theory and Practice of Medicine." By John Glen, M.A., President of the Hunterian Medical Society. Edinburgh. 1856.

We regret, from the extent of Original Communications in the present Number, that our Case-Book and Periscope are unavoidably postponed.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*Observations on Croup: Differential Diagnosis.* By Charles Wilson, M.D., Fellow of the Royal College of Physicians, Edinburgh.

While what may be termed the intimate diagnosis of Croup, or that which educes the features of its different stages, so as to mark and ascertain its progress in an individual example, was the natural accompaniment of the nosographical description of the disease, we have farther discussed, in the special diagnosis, the distinctions between its several separate forms, as these stand in their nearer relations of affinity, whether as primary or as secondary affections. It now remains to note the wider demarcation which divides laryngitis, and its modifications, from certain other developments of morbid action occasionally existing within the larynx, or from the influence of casualties, or from the results of perturbed innervation dependent upon other than merely local causes. From the consideration of these is evolved the differential diagnosis of the disorder.

In obstruction of the larynx (*Laryngemphraxis*), whether inherent, and from intrinsic causes, or casual, and from extrinsic substances intruded within the canal, we have again the mode of development of the suffering to aid us in our diagnosis. Where it is dependent upon epithelial growths, or mucous polypi (*Laryngemphraxis polyposa*), usually attached in the near vicinity of the vocal chords, frequent attacks of violent and suffocative cough, recurring through a long succession of time, and with progressively graver intensity, unaccompanied by expectoration, and without evidence of affection in the chest, are sometimes the only indications to induce us to suspect the precise nature of the cause of obstruction and irritation. If the individual be previously, or simultaneously, affected with nasal polypi, our surmise may acquire greater probability from the coincidence. A retired medical officer, who has been frequently my patient, and who had a large cluster of mucous polypi in the nasal cavities, after having been long liable to paroxysms of severe, and almost convulsive, cough, ejected, in one of these, a small, polypus-like substance, the apparent nature of which his familiarity with its congeners enabled him at once to recognize, when he was forthwith, and enduringly, relieved. Where the obstruction is of a cancerous nature (*Laryngemphraxis cancrosa*), we may expect the emaciation, and peculiar complexion, of the corresponding diathesis. In simple stenosis, from chronic infiltration (*Laryngemphraxis stenotica*), the disease probably remains as a result of an antecedent acute disorder. To the two former of these affections, childhood is scarcely liable; and to the latter, with exceeding rarity: an example, following small-pox, has, however, been already noted. In stenosis, the remissions are never complete, though the symptoms are liable to recurrences of marked aggravation. There is often little cough, but there is hoarseness or aphonia: and the laryngeal breath-sounds, more or less sharply stridulous, are heard permanently; sometimes with remarkable distinctness during expiration, and often propagated throughout both the lungs. Emphysema of the lung is a frequent consequence.

But a more indispensable subject for diagnosis in children, is the presence of foreign bodies (*Laryngemphraxis extrinseca*) within the windpipe. A surprisingly small object sometimes suffices, even in adults, to produce the most alarming results. An attendant at an inn, while in the act of supping broth, suddenly sunk back, with livor of face, and interrupted breathing. Being instantly at hand, I found him stretched on the floor, apparently almost insensible, with dark lividity of countenance, and every indication of nearly approaching death by asphyxia. While preparing to open the trachea, an effort to cough ejected a small shred of leek, about three-fourths of an inch in length, and a line in thickness, and he was instantly restored. Probably the vegetable fibres, still retaining a degree of tenacity, had been here folded over the glottis, and partially entangled within it, and had irritated the highly sensitive organization into spasmodic constriction. The diagnosis of such cases will lie in the circumstance of the instantaneousness of the attack; in the fact, where ascertainable, or where the child is old enough to afford information, of some substance having been previously in the mouth, such as might have passed within the larynx; in the complete absence of pyrexia, or of other previous indisposition; and in the unaltered state of the voice, or its suppression, or hoarseness without the mixed clangour of croup: while the approach to certainty becomes more decided, if we can note the presence of a valvular click, at the site of the intruded body, sharper, and better defined than that from pseudo-membrane, produced, more especially, with certain substances, and which, for example, I recollect observing with great distinctness where the object was a plum-stone; a frequent, and convulsive cough, unless in cases where the foreign body has become impacted, without any striking peculiarity of croupy sound, but essentially dry and hard; a frothy exspuition sometimes tinged with blood; with the tonsils unaffected, and the deglutition unimpaired. Of these, the more positive indications are the history of the attack, the abruptness of the accession, the valvular click, and the frothy exspuition, and we find a negative test of value in the unaffected tonsils: while we must attach considerable importance to the discrepancy in the whole outline and succession, as well as in the character and duration, of the general phenomena, from the more determinate type of disease which is observed in croup. It may be well to recollect here, that intestinal worms have been known to pass within the trachea of children, and to produce suffocation; a number of examples of which are cited in the work of Barthez and Rilliet.[1] In the lower animals, a description of worms has been found in the trachea of fowls; and frequently in that of calves, leading extensively, in the latter, to fatal results.[2]

With regard to the *Dynamic* affections of the larynx (*Laryngopathia dynamica*), or those disorders in which there is no material basis of disease distinctly local, or within the larynx itself, but in which the symptoms arise from disturbed innervation, experience teaches us that these may be referred to three leading groups of causes: reflex action, or sympathetic irritation of the laryngeal branches of the pneumo-gastric nerve, through affections of other organs, and especially of the stomach; modifications of action of the central cerebro-spinal nervous system; and direct tension, or irritation, or compression, of the recurrent nerve through tumours pressing upon it in its transit, the extent, and precise nature of the effect produced being regulated by the quality, position, and magnitude of these tumours. From the first of these springs a form of affection (*Laryngismus gastricus*), chiefly occurring in children otherwise of sensitive and delicate organization, but not frequent in my experience; in which the child, apparently previously in its usual health, but possibly after some irregularity of diet, awakens abruptly, after a short repose, and starts up with loud, crowing respiration, and threatening of instant suffocation, which subsides or increases in paroxysms. Relief is usually obtained after an accession of vomiting; the matters ejected sometimes revealing the probable origin, or exciting cause, of the attack. Thus the child of a cottager, sixteen months old, without previous cough, and without dyspnœa, had potatoes and milk before being placed in bed. Half an hour afterwards, it started from sleep with the form of seizure described, and with the like issue and description of relief. These attacks may present themselves repeatedly, at irregular intervals, and more or less distinctly associated with an ostensible exciting cause: but even these have appeared to me to arise, chiefly, in families whose members have otherwise shown a liability to be affected with proper croup; as if it had only required the operation of a different description of cause, to have concentrated on a susceptible part a different and less transitory development of morbid action. From the more formidable disease, they are distinguished by the absence of the initiatory symptoms, and of pyrexia; by the voice being unaffected, or affected only during the paroxysm; by cough, which I have never known to be absent in croup, being not necessarily present, or being ordinary in sound, shortly before and after the attack; by the tonsils and fauces being free from marks of inflammation or sanguineous injection; by the paroxysm being usually solitary, with the dissipation of the symptoms perfect at its close; and by the discrimination of some probable immediate cause, producing the seizure.

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[1] *Traité des Maladies des Enfans*, T. iii., p. 875.

[2] Dr Baird, *Proceedings of Berw. Nat. Club* (1853), p. 146.

From a more immediate implication of the great nervous centres, arises the distinctly marked disease (*Laryngismus cerebro-spinalis*), usually known as spasm of the glottis, or the convulsion of Clarke. The ages of the children, whom I have seen affected with this disorder, range from a fortnight to nine months: the period of its prevalence, therefore, commences earlier, and, still more conspicuously, terminates sooner, than that of croup. It is farther distinguished from the latter disorder by its being usually without essential prodromi, though I have seen it follow upon other diseases, as pertussis or bronchitis; or it may become complicated with these, or with other ailments, as measles, or even croup itself. The main diagnostic marks, however, and they are very determinate, lie in the phenomena of the seizure itself. Sometimes after a few whimpering cries, sometimes after a single crowing intonation, analogous to the cry in epilepsy, the infant is thrown into a state of rigidity, more or less complete and general. The pupil is dilated; the limbs are stiffly extended, with the toes pointing downwards; the hands are clenched, with the thumb enfolded; the spine is rigid; the forehead is knit and wrinkled; the head and neck are bent strongly backward; and the abdominal muscles are thrown into a similar state of spastic tension. It is evident that this is a form of convulsion; but it is a tonic convulsion, and there is no alternation of movements as in ordinary eclampsia. In this state, as the livor becomes apparent, the respiration may be rather judged to be arrested, than simply obstructed: the spasm which has taken place in the glottis, not more than the restriction of respiratory movements in the walls of the chest, or, where these partially continue, their failure in co-ordination or completeness, and therefore in adequacy, having led to a mechanism inducing the asphyxia, widely different from that in croup. It has seemed to me, sometimes, as if it were the powers of expiration which were chiefly at fault; and that the diaphragm remained in a fixed state of tonic spasticity, as partly indicated by the protruded abdomen: so that, in this way, the air is not expelled, and consequently not renewed. Hence the striking diversity in the attendant results, between the disease and croup. In croup, from the powerful, and still duly alternative, action of the respiratory muscles, the air is drawn forcibly through the narrowed glottis; and, in consistency with the usual laws for the production of sounds, the stronger current now causes the sharper vibrations, and the louder stridor. In laryngismus, on the contrary, the comparative immobility of the walls of the chest, or the want of equipollence or co-ordination in the movements, prevents the expansion necessary for the production of the inspiratory current; and, after the initiatory cry, which is no unfailing part of the paroxysm, we have no sounds in the larynx, because there is a deprivation of the very element for their formation.

Under such circumstances, and such also, or analogous to such, are usually the conditions of ordinary epilepsy, where that there is no spasm of the glottis, alone producing the asphyxia, is evinced by there being no stridor of the breathing, tracheotomy itself would avail nothing; as there could be no sufficing ingress of air to the lung, whatever the state of perviousness of the windpipe, until the subsidence of the spasm of the proper respiratory muscles also had rendered the walls of the thorax dilatable. We need hardly remark, on the other hand, that, were the laryngeal obstruction, of itself, an efficient cause and origin of the more general convulsions, we should find these more regularly associated with croup. The duration of the attack is here usually about three minutes: where it appears longer than this, it is generally owing to repetitions in rapid but distinct succession. Sometimes a peculiar cry is said to terminate the seizure abruptly, but this I have never remarked: the restoration was always gradual. If anything additional were wanting, to give to this affection the marks of a distinct entity, and, particularly, to distinguish it from croup, it might be discovered in the negative signs of the natural state of the fauces; in the absence of cough, or, where this is casually present, as in the cases which I have seen complicated with pertussis, measles, and bronchitis, in its sound being divested of the croupy character; or in the more positive sign of the voice, or cry, being perfectly natural between the paroxysms. Sometimes, in the more incomplete seizures, there is a persistence of natural cries throughout their whole duration. The history of its subsequent progress continues to mark its diversity. The seizures recur irregularly from one to four times daily, or even more frequently; or two or more follow in immediate succession; or they present themselves with intervals extending to fourteen days, or to still more protracted periods; the remissions, as they occur, being alike perfectly complete. The termination may be in sudden death: or the attacks may ultimately assume the character of ordinary eclampsia, and not a few have been known to end in hydrocephalus; while they have been sometimes remarked to be associated with craniotabes, or imperfect development of the bones of the cranium. In one case, where my patient, after apparent recovery, was removed to a distant residence, I learned that she died from convulsions ten months afterwards, having evinced complete health during the intervening period. Should a surcease, it may be interposed, of nervous action depend on a condition of general paralysis, having its origin in the nervous centres, and be accompanied, either by impeded respiration through collapse of the glottis, or by tendency to choking on the ingurgitation of fluids from the more usual habitude of its imperfect closure, the presence of that general paralysis will lead to a ready inference as to the special state of the parts, and the influences, which have produced the variation in the local phenomena. To this, however, beyond the indication of its possibility, it is scarcely necessary to assign here the position of a separate affection of the larynx.

A group of symptoms, identical with that which has been thus briefly analysed, has been customarily referred to conditions of a wholly different description, with which it seems difficult to discover its possible connection. Designated as the *thymic asthma*, or the *asthma of Kopp*, it has been assumed that the origin of the affection lay in a condition of hypertrophy of the thymus gland. Yet, where lesion of the function of respiration, of whatever character, was to be referred to the existence of any morbid or preternatural growth within the chest, it appears only rational to expect, that the symptoms assigned should be such as closely approach to those produced under circumstances where the cause and its operation are more indisputably apparent, as with the presence (*Laryngismus synthlipticus*) of other neo-plastic or hetero-plastic formations, or with that of aneurism. From an examination of the alleged phenomena, it seems evident that many, if not all, the cases habitually included under the head of thymic asthma actually belong rather to the Laryngismus cerebro-spinalis: although, undoubtedly, we may have hypertrophy of the thymus associated with the affection of the nervous centres, in the same individual; and that not only as a possible, but as an exceedingly probable conjunction, in those strumous habits which confer alike the proclivity to both. But this coincidence establishes no causation, or ought to establish none, in the face of other certainties of easy discernment. We encounter the symptoms of thymic asthma, as detailed by writers, where there has been no enlargement of the thymus; and we have, undoubtedly, enlargement of the thymus, where the alleged train of symptoms has not only been wanting, but where there has either been no other indications whatever of its existence, or such as were wholly divergent in their nature. In the case of a girl, three years of age, naturally of delicate and strumous constitution, I found, on examination after death, a thymus gland of the weight of 7½ drachms or 450 grains. It was closely adherent to the left bronchus and large blood-vessels, round which it had made a bend, and from which it was separated with some difficulty, having here also in its vicinity several enlarged bronchial glands. Its measurements were about four inches in length, and nearly three at its greatest breadth; with a maximum thickness of about half an inch, gradually diminishing to a thin margin, as it expanded itself laterally. The parents described this child as having, for six months previously, been habitually asthmatic, and liable to palpitation, but with no violent seizures, or anything approaching to laryngismus; and it is interesting to know, while seeking to distinguish this form of asthma from croup, or to establish its relations otherwise, that this child actually died ultimately of exudative croup, with the false membrane within the trachea, and with the proper symptoms of this affection, while those referrible to the hypertrophied thymus had been uniformly of a very different, and infinitely more subdued description. Where we have measles with croup, the former exists as a true complication; while, manifestly here with the enlarged thymus, we had to deal merely with a coincidence: but such coincidences commend to us caution in attempting to construct formulæ of disease; and reiterate the lesson, that nature presents us nowhere with an invariable standard, but only with types, in a certain sense conventional, towards which she is ever approaching, or from which she is receding. Where thymic asthma, then, actually occurs, purely as such, its symptoms ought to range with those produced by other organic alterations within the chest, causing pressure on the recurrents, or on the air-passages themselves. Where, on the other hand, carpo-pedal and other convulsions subsist with altered voice, stridulous breathing, and croupy cough, of which, however, I have myself seen no instance, the case betrays its complexity; and such complexities, doubtless, may reasonably be expected to occur exceptionally, when their special nature and origin must be sought to be educed, and recognised, by the usual rules of diagnosis.

It is to the adult we must chiefly look, for illustrations of the descriptions of affection resulting from perturbations of the innervation of the larynx, through pressure within the chest affecting the pneumogastric nerve (*Laryngismus neo-plasticus*), or, more especially, its recurrent branch. Pyrexia, once more, is here no necessary part of the order of phenomena. The affection of the voice differs from that in croup, by the uniform absence of all shrillness, or intensity of pitch or tone. It is husky, without volume; often aphonous. The respiration is difficult and oppressed, frequently to the extent of orthopnœa; but it is either not stridulous, as I have witnessed even where the voice was reduced to a hoarse whisper, or the stridor is traceable to a spot lower down than the larynx, and near the limits of the upper portion of the sternal region. Within the chest, the respiratory murmur is not then universally diminished, as in croup, but partially only; and diversely, according to the position and magnitude of the tumour. Sometimes, in certain portions, sonorous, or, at later periods, copious mucous râles are loudly audible. Cough may be absent, or it may be troublesome; but it partakes as little as the voice of the peculiar character of that of croup. The expectoration is either absent, or it is scanty, viscid and colourless; or faintly rust-coloured, or jelly-like, with occasionally sputa of pure blood. In one case, of medullary sarcoma of the lung, I observed a habitually congested state of the velum and arches of the palate: but the tonsils were not tumid; and the deeper colour, and smooth and glistening surface, presented an aspect widely different from that which I have noted so uniformly in croup. The difficulty of deglutition amounts sometimes to complete dysphagia; but the interruption is not from the choking induced by a contact with a highly irritable glottis, or with an epiglottis obstructed in its mechanical function, but is evidently the result of an obstacle situated lower down, and acting upon the gullet more directly. This dysphagia usually increases gradually, and becomes persistent; though I have observed it to vary largely in extent at alternating periods. The hoarseness also varies widely in intensity; and, like every other observer, I have remarked it to disappear and recur after longer or shorter intervals. The current of these symptoms is, of course, infinitely more chronic than that of croup. As to those signs which belong more exclusively to the tumour itself, and have less immediate reference to any implication of the functions of the larynx, these naturally vary according to the site, the special nature, and the dimensions of the morbid growth. Where the deposit, or the hypertrophy, is limited in extent, or deeply seated, the indications of its presence are proportionately obscure. Where it is superficial and large, it may be sometimes recognizable externally; or its presence is infallibly denoted by the signs on percussion, by the partial suppression of the respiratory murmur, the greater comparative resonance and apparent force of the voice in the chest, and of the pulsations of the heart and arch of the aorta, the œdema of the face and upper extremities, and the turgidity of the veins of the neck.

Where the cause of perturbation of the nervous action depends upon the presence of an aneurism of the arch of the aorta (*Laryngismus aneurysmaticus*), there seems to be a modification of the effects produced; probably from the greater, and constantly renewed, impulsion which now accompanies the compressing agency, and gives a character of irritation, as well as of obstruction, to the force exerted. In these cases, the affection of the larynx undoubtedly appears to assume more of a spasmodic form, than is usual under the influence of the less mobile pressure; and we have in this way striking instances recorded of simulation of local laryngeal disorder, which have embarrassed even physicians of talent and experience. In such instances, the inspirations have been crowing, and the breathing loudly stridulous; and this has recurred in repeated paroxysms, capable of being provoked by a variety of causes, but chiefly occurring after exertion. The cough, also, has been frequent, and sometimes violent, and the voice has been hoarse: but even here, proper moreover as such cases are to the adult periods of life, the peculiar clangour, so common in croup, and so all but universal in its early stages, is not encountered. For a perfect diagnosis, we look to the history of the malady; and, more especially, to the existence of its physical signs. There will usually be some uneasiness in the anterior part of the chest, and sometimes severe pain. Where a pulsating tumour can be detected externally, the case loses all its features of ambiguity.

If I have purposely deferred to the last the consideration of the *Acute asthma of Millar*, it has not been so much because I had any doubt as to its proper position with regard to the other diseases of the larynx, and to croup especially, could it be really held as definitely entitled to assume any, as because such doubts have been largely entertained by other inquirers, whose opinions it would be arrogance to slight; but who have evidently been perplexed by the discrepancy which they have encountered between the positiveness of Millar's deductions and the poverty and indistinctness of his facts, and who have wanted the means of testing his conclusions by an appeal to opportunities of experience nearly identical with his own. The district, upon his observations in which Millar founded his description of the disease which he has designated as the acute asthma, is precisely that in which I have gathered my own experience of croup: and perhaps never, in any other instance than his, have the results of practice in a rural circuit, and with reference to an individual disease, excited greater attention, or led to more protracted controversy, especially among continental writers, or transmitted more perceptible traces of their influence. There can, certainly, be no surer method of testing an author's accuracy, than by comparing his observations, firstly with themselves, as examined individually, and secondly with those of others, gleaned afterwards in the same locality; keeping in view the possible changes in the circumstances of the population in that locality, in as far as these can be judged calculated to modify the results. Having had occasion to examine into the physical condition, and the prevailing diseases, of the population of the district[1] which has thus been alike the scene of Dr Millar's observations and of my own, and that partly by means of access to important documents relating to a period close to the time at which the former wrote, I shall thus offer no remark for which I have not prepared myself by seeking all the requisite advantages which it was possible for me to secure.

Dr Millar saw in his acute asthma "the original disease of asthma in its simplest form;"[2] and in this first assumption, for such it purely is, we appear to discover a clue to the whole of his other opinions. Ruled by this preconception, the remarkable disease of childhood which he witnessed was to be compelled, though with but little success, to model itself, in all its features, upon those of the ordinary asthma of more advanced life, according to the imperfect fashion in which that form of disease was then generally understood. Assuredly, there is no evidence, from any other sources, that a type of disease, with such form and tendencies as he assigned to it, was ever prevalent in the district referred to: but there is proof enough, from the intrinsic evidence of his own cases, that what he witnessed was no purely spasmodic affection whatever, existing independently of inflammation, as he imagined it, but was in reality the ordinary croup, as it had been elsewhere distinctly indicated by Blair, and depicted by Home; and as it now exists with sufficient frequency in the same district to be familiar to every resident practitioner of experience, with whom the asthma of Millar, as Millar described it, is never otherwise recognised.

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[1] *Proceedings of Border Medical Society*, 1840, p. 47: *British and Foreign Medical Review*, 1842, p. 576.

[2] *Observations on the Asthma and on the Hooping-cough*, 1769, pp. i., 16, 23, 92.

So vaguely has Millar characterised the disease, that, while he asserts the attack to have been sudden, and that it seized children who had gone to bed in perfect health, he not the less, of the only three cases which he records, states that in one there was tickling cough and difficult breathing for the day preceding, and in another, difficulty of breathing for one or two days previously. Again, in his general description, there is no explicit reference to the existence of the cough, which is thus noticed in his first case: yet "coughing naturally" is very properly introduced as a happy omen in his observations on prognosis; while he farther proves that it really constituted an essential part of his disease, by stating, though merely in a note,[1] that he has often seen the paroxysm removed by it, and has "generally observed" that it afforded at least a temporary relief. In the same way, under the general symptoms, there is no allusion to the subject of the exspuition; yet a "usual discharge of phlegm," as a prognostic of a favourable issue, occurs elsewhere among his other lax and uncertain phraseology. As to the state of the tonsils, they are not described; but some of his patients had great thirst, not in itself an indication of any merely spasmodic disorder, and "durst not drink, as every attempt to swallow was attended with danger of instant suffocation."[2] When he speaks, moreover, of "violent convulsions" as generally coming on at the close, it is probable also that this term is used without any very precise application, as he describes a "convulsive" motion in the belly as one of the concomitants of the first stage. Proper convulsions, exceedingly rare in croup, are habitual with the disease known as spasm of the glottis (*Laryngismus cerebro-spinalis*); but the hoarseness, laborious breathing, with the croaking sound heard at a distance, and difficult deglutition, as indicated by Millar regarding his asthma, constitute no parts of the other disorder. Indeed, he himself says that the convulsions are seldom universal, that they are not to be confounded with epilepsy, and are chiefly confined to the organs of respiration: what he intends therefore by the term is, evidently, merely a violent action. As the second stage is described as "usually incurable," speaking obviously with reference to the danger of a fatal issue, it is manifest that his chronic asthma, as thence originated, must have been a somewhat rare consequence. All his other symptoms, it may be added, are merely such general indications as stamp no individuality, and may group themselves round whatsoever other form of fatal or dangerous disorder. But, above all, in his meagre reference to only two dissections, while the first of these conveys no available information, unless that the lungs were perfectly sound, we learn from the second, that the bronchial vessels were filled with a "white, tough, gelatinous substance." As he admits that the second stage of his disease and the croup of Home are identical,[1] and that the morbid appearances found by Home are those also of his own second stage, we are instructed what idea he desired to be attached to this description of substance.

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[1] *Op. citat.* p. 78.

[2] *Op. citat.* p. 22.

What then was his first stage? It was not bronchitis, for that has no sudden onset, with paroxysms of sonorous breathing: not spasmodic asthma, for asthma has no such second stage, with the special pathological products here assigned to it: not any form of laryngismus, for neither does that terminate in exudation: not the convulsion of Clarke, or thymic asthma, for these, if they be not really one disease, differ from it wholly in character and in progress. It was, then, by the evidence of Millar himself, and by all the intrinsic evidence he has enabled us to gather, merely croup; but croup ill-observed, ill-described, and perverted by a hypothesis: and not even croup in its first stage, for that, in spite of his claims to the contrary, and his reproach that the disease had not been thoroughly investigated by others, he has still wholly overlooked. It was enough to have excited suspicion of the want of value and precision in Millar's observations, that different writers have included his asthma under different, and sometimes diametrically opposite, categories: some having ranged it with spasmodic croup, as distinct from the exudative; some with mucous croup; others, as Ley, an author of learning and research, but of strong bias, with laryngismus and Clarke's convulsions;[2] a few, nevertheless, with a close perception of the truth, suggesting its place as, if anywhere, beside the genuine croup, in its exquisite form. But by far the greater number, misled especially by the air of precision, and consequent aspect of reality, imparted by Wichmann to the figment, while largely modifying the order and expression of the phenomena, yielded their assent to its purely spasmodic nature, in the easy way with which men often shrink from an inquiry, and glide into a preconception. It appears strange, indeed, that to this acute asthma should ever have been conceded a place in nosology, as the designation of an independent disorder; but the author was one of those who, by a specious indistinctness of expression, a display of learning often slenderly apposite, and an air of confidence in himself, with a depreciation of others through hints that the disorder he describes had been universally misrepresented by preceding observers,[3] have surprised the world into acquiescence, and, along with the ambiguity, have attained the authority of an oracle. Thus an impression was originally made which has never since been effaced; and there has resulted a perpetual labour to constrain a certain class of observations into a preconceived form, and to discover in nature what has only been founded on an attempt to assign an arbitrary limit which could nowhere be rendered precise or even tangible. It would have been more agreeable to have written an eulogium of Millar: but I have dealt candidly with his opinions, because there is no student of medical history who cannot discern how perniciously they have warped our conceptions regarding croup, and its congenerous diseases, through the false notions of the relations of spasm which they have mainly insinuated: and because there is no industrious observer who may not perceive how inadequately they have been founded, or how carelessly they have been elaborated; and that his asthma, as he understood and described it, has, in reality, no place in nature, and therefore none in our science.

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[1] *Op. cit.*, p. 80.

[2] *Essay on Laryngismus Stridulus*, p. xxiii.

[3] Millar, p. 117.

Lastly: As to a remote, or segregative, diagnosis of croup, by which the disease is to be distinguished from affections of other parts than the larynx, different in their nature, as in their site, yet presenting certain individual points of analogy or resemblance, a mere enumeration of these may be sufficient for our present purpose. Thus we may refer to exudative and capillary bronchitis; sometimes to carditis; to the so-called bronchial phthisis; to aphthæ, and to angina and diphtheria pharyngea; to retro-pharyngeal abscess; to the dysphonia clericorum; to certain phases of hysteria; to the affection in infants termed "snuffles;" to ovulitis, which, in its simple state, if in remarkable intensity, I have known to produce aphonia, as, when chronic, through its mechanical irritation, protracted cough and vomiting; to enlargement of the thyroid gland; and to pertussis. But even the closest approach of any of these to the features of croup is accompanied with so many positive signs of its own, and is negatively so deficient in the characteristic tokens of the other, that the most ordinary caution suffices for their discrimination. The crowing inspiration, in pertussis, doubtless indicates a condition of spasm of the glottis; but the sound of the cough, and the attitude of the patient, with the head bent forward over the chest, while in croup it is thrown backwards, would suffice alone to establish an immediate and certain diagnosis. In a case of acute pituitary catarrh, occurring in a boy of eight years of age, the sibilant râles in the chest were so copious and loud as to be heard at a considerable distance, and almost simulated the dyspnœa and the stridor of croup: but, in such a case, the sound of the voice and cough at once establishes a difference, and auscultation easily determines the rest.

POSTSCRIPT.

Bibliography of Croup.—It is the wish of the writer to compile, on an early occasion, a BIBLIOGRAPHICAL HISTORY of the disease of CROUP, upon which he is anxious to bestow all the completeness and comprehensiveness which it is possible for him to attain, so as to trace the progress of observation and of opinion, and illustrate the development of our knowledge upon the subject, throughout the various periods, as well as the separate fields, of medical literature. The materials for the institution of such an inquiry, in the amplitude he desires to possess them, are, however, neither at his immediate disposal, nor to be found in any public library or libraries, to which he can command access. The task he contemplates, therefore, must remain unaccomplished, or be unduly narrowed in its scope, if he cannot engage the friendly support of others in the advancement and success of his labours.

It has occurred to him, that there may be many readers of this Journal throughout the different countries of Europe, or beyond its limits, who, for the sake of their interest in the subject of a disease so remarkable as Croup, or because of their zeal for the diffusion of a knowledge of their native literature, or from their mere solicitude for the progress of science, as the aggregate of the offerings of the many for the advantage of the whole, would willingly lend their aid to promote his object. From the extent and facility of our intercourse with France and Germany, and the United States of America, the medical literature of these countries is generally familiarly known, or, at least, easily accessible ; though, it is scarcely necessary to add, any information educed from it, bearing reference upon the selected theme of the writer, would be thankfully appreciated. But that of Holland, Denmark, Norway, Sweden, Italy, and Spain is more scantily circulated amongst us, and thus, however eminently entitled to consideration, remains comparatively unexplored. Yet there is probably not one of their languages which does not contain excellent monographs, or original comments, or scattered notices, or observations, on Croup, whether embodied in its special, its systematic, or its periodical literature, such as are not quoted in our ordinary treatises, or do not even appear in our catalogues or lists of authorities, or are there only by name, and which are thus, in so far, excluded from the common gleaning ground of science.

Should, then, any physician, a native of any of these countries, or skilled in their medical literature, observe this notice, it is hoped that he may suffer the occasion to excuse the peculiarity of its form, and kindly transmit to the writer *a list of the original sources of information on Croup*, in one or other, or any of these several languages ; or in Latin, or whatever other language, if founded on native experience, and issued from a native press; or if deduced from experience in Russia, published in any other than the Russian language. Should he add suggestions as to the channels through which they may be reached, he will confer a farther obligation. Either favour will be received with gratitude, and converted to use to the utmost of the writer's means and capacity.

EDINBURGH, 20*th Feb.* 1856.

ARTICLE II.—*On the Lateral Movements of the Foot.* By ROBERT BEVERIDGE, A.M., M.D., Lecturer on Botany, late Anatomical Demonstrator, Marischal College, Aberdeen.

IN most modern systematic works on anatomy, a statement is made to the effect that at the ankle-joint the motions are restricted to flexion and extension, and that if lateral motion take place at all, it is only to a very limited extent. It is further stated, that the lateral movements of the foot—those of abduction and adduction, as they are termed—are performed at the transverse articulation in the centre of the tarsus, formed by the connection between the five anterior tarsal bones in front, and the two posterior behind. This idea, which, as I shall endeavour to show, is a mistaken one, seemed to have arisen from confining examination mainly to dissection of the joint in the dead body, without adverting to the appearances that may be observed in the living, or to the circumstance that the motions of the ankle take place under two very different conditions, according as it has or has not to support the weight of the body. The outline, also, of the articular surfaces, especially that of the astragalus, bearing, as it does, a resemblance to true ginglymoid joints, where motion in one plane only is admissible, has, doubtless, contributed to foster this opinion, for it has been too often the case in anatomy, that conclusions as to the function of organs, are drawn from analogy, in place of from direct observation.

The analogy between the ankle and such an articulation as the elbow, is, indeed, more apparent than real, as an attentive examination of the contour of the former joint will readily show. The upper aspect of the articular surface of the astragalus is markedly convex, and presents two elevations laterally, with an intervening hollow, thus making an approximation to the appearance presented by the trochlea of the humerus or femur. These lateral elevations are most marked anteriorly, and become fainter as we trace them backwards, until at the posterior part they disappear entirely, leaving a uniformly rounded surface. This portion of the astragalus is by no means of the same breadth throughout, being widest in front and gradually narrowing backwards, an arrangement caused by the want of parallelism of the two sides which articulate with the two malleoli, and which are placed so obliquely with respect to each other, that their planes, if produced, would meet about the extremity of the heel. An important difference is also observable between these two sides. The internal is vertical, flat, and adjusted for articulation only at the upper and fore part; the external, on the other hand, is rounded, convex, and has an articulating surface occupying nearly the whole of its extent. The articular surface of the lower part of the tibia corresponds most with that towards the *fore* part of the astragalus, being arranged into a general hollow, having two depressions on either side, with an intervening ridge. It is to be remarked, however, that the antero-posterior diameter of the tibia at this part is much less than the corresponding measurement of the articular surface of the astragalus, and also that the arrangement of the ligaments is such that the former bone can be made to coincide either with the fore or back part of the latter. This has an important reference to the lateral motions of the foot.

But before pointing out how these are effected, it may be necessary to show that they do not take place, as usually stated, at the articulation of the astragalus and calcaneum behind, with the scaphoid and cuboid in front. Were this the case, these lateral motions would be effected without movement of the heel, and would still be performed, although the ankle-joint and heel were fixed. But let any one try this, which can be done readily on his own person; let him grasp firmly the lower part of the leg so as to prevent deception from motion of the articulations above, and then fix the ankle by seizing the heel, and he will find that no effort will then produce the motions of abduction and adduction. Again, a little attention will show that in these movements the toes and the heel describe arcs of circles in opposite directions, the foot moving as it were on a pivot through the ankle-joint, that is, during adduction, when the toes are pointed inwards, the heel is turned outwards, and *vice versa* in abduction. This circumstance appears to have been overlooked, for the movement of the heel is but slight, while that of the toes is extensive, the former from its proximity to the centre of motion describing an arc of a small circle, while the latter describe a curve whose radius is equal to the distance between the ankle-joint and the toes. From this it appears to me clear that these lateral movements of the foot take place at the ankle and nowhere else.

In investigating these motions, the following circumstances especially attract notice. 1*st*, The foot does not preserve the horizontal plane. 2*d*, The two motions are not equally extensive. 3*d*, The position of the foot alters materially the extent to which they can be carried.

1*st*, The foot does not preserve the horizontal plane. In the motion inwards the foot is twisted slightly, so the inner edge is turned somewhat upwards, the outer edge being directed towards the ground. In the outward motion, again, but very little, if any, twist is observable, the foot remaining nearly horizontal.

2*d*, The two motions are not equally extensive. The motion inwards, or adduction, is much more extensive than the opposite one. It may be carried to the extent of throwing the foot obliquely across the instep and foot of the opposite side, or till it makes an angle of 40° or 45°, with a horizontal line drawn at right angles to the tibia, which line may be regarded as representing the straight position of the foot; while the outward motion or abduction cannot be carried farther than to place the foot at an angle of 20° with the same line. In estimating the extent of these, care must be taken not to confound the movements of the foot alone, with its motions as a part of the lower extremity. The outward direction so usually given to the toes during walking, is caused not by any motion of the foot itself on the leg, but by rotation outwards at the hip-joint.

3*d*, The position of the foot alters materially the extent to which these motions can be carried. They are most extensive when the foot is extended, they become somewhat restricted as the foot is bent, and when the weight of the body is thrown upon the foot, they are obliterated. This has evidently reference to the security of the erect attitude, which would have been endangered had lateral motion, either at the knee or ankle, been possible, while the weight of the body was being supported by these joints. As already stated, changes in the direction of the toes, while the body is in the erect posture, are effected by a movement of the lower extremity as a whole at the hip-joint; the foot, under these circumstances, invariably remaining at right angles to the tibia.

Recurring to the arrangement presented by the interior of the articulation, but little difficulty occurs in explaining how lateral motion should be admissible in one position and not in another. When the body is erect, and its weight rests upon the ankle, the tibia is supported upon the fore part of the articular surface of the astragalus (which is the widest portion) and all parts of the articulation are firmly pressed together by the superincumbent weight. In this case the astragalus completely fills the space between the two malleoli, which grasp it closely on either side, while the tibia presses down upon it from above, thus rendering motion, save in the vertical plane, impossible. This state of parts reaches an extreme when the body is supported upon the toes (as in walking, etc.), for then the bones above are forced by the weight upon the widening fore part of the astragalus, which is thus literally wedged between the two malleoli, these processes descending by the sides of that bonelike bar, to prevent its being turned or twisted in any way. When, however, the foot is freed from the superincumbent weight by the body being supported on some other part, it then tends to pass downwards and outwards as far as the lateral ligaments will permit, separating itself from the tibia, and leaving an interval in the joint, in which a rotatory movement of the astragalus may take place. It may be urged, that this separation of the bones will be prevented by atmospheric pressure, but it may be shown that it actually takes place, and I believe that the pressure of the atmosphere is fully counterbalanced by the presence of a large quantity of synovial fluid, which I have observed so uniformly in the joint, that I cannot consider its appearance there either abnormal or *post-mortem.*

That a separation between the astragalus and the tibia does take place during the dependant position of the foot, is seen readily on dissection, and that it also occurs during life, the following simple experiment will, I think, show. Let a thin slip of wood, or any similar material, be firmly fixed in a horizontal position in the hollow of the sole of (say the right) foot, so as to receive as little pressure as possible when the person is standing upright, and sufficiently long to project an inch or two on either side of the foot. Let the person now stand erect, and lean the whole weight of the body on that foot, and, while so placed, let the vertical distance between the head of the fibula and the slip of wood be measured. Let the weight of the body be then transferred to the left foot, and let the right foot be slightly raised from the ground, so as to permit its weight fully to act (still, however, keeping it horizontal, which is easily done by observing the slip of wood), the distance, measured as before, will be found to be materially increased.[1] Part of this difference may certainly be owing to compression of the soft parts of the sole of the foot, and part to the approximation of the tarsal bones, but I have no doubt but the greater part is due to the change in position of the astragalus and tibia.

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[1] In making this observation myself, I employed a thin slip of ivory as being lighter, and less liable to be bent than wood, and I found the increase in length

When the foot is extended, the tibia corresponds with the narrow posterior part of the astragalus, and, in this position, therefore, the space between the two malleoli available for lateral motion of the astragalus is still farther increased. This precisely corresponds with what actual observation shows to be the case, viz., that it is in the extended state of the foot that these movements are greatest in amount. They seem to be effected chiefly by the rounded outer surface of the articular portion of the astragalus gliding over the outer malleolus. The motion of this surface of the astragalus can, in fact, be distinctly felt during adduction by pressing firmly in front of the outer malleolus, outside the extensor tendons of the toes. It would even appear that these two lateral motions do not go to the full extent that the contour of the bones would allow; they seem to be checked by the anterior and posterior peroneo-tarsal ligaments, the former of which limits adduction, and the latter abduction. The principal muscle employed in adduction is the tibialis anticus, and it is to its oblique action that the turning upwards of the inner edge of the foot during that motion is due. Its antagonists are the peronei, more especially the peroneus longus.

From this view of the movements of the ankle, it will be seen that this articulation is not to be set down as an example of ginglymus or hinge-joint, if to that term we are to attach the idea of a joint where motion in but one plane is permitted. It must be remarked, however, that of the larger articulations of the extremities, no two are precisely alike, either in their general arrangement or in the amount of motion; so much so, that in place of a division into groups, they naturally arrange themselves into a series, of which the elbow will occupy the one extreme, and the shoulder the other. Such a series would be arranged thus:—1st, Elbow where motion is entirely restricted to a single plane. 2d, Knee, where, in addition, a slight amount of lateral or rotatory motion takes place when the joint is flexed. 3d, Ankle, where, though motion in a vertical plane is the principal, yet, as I have endeavoured to show, motion in a horizontal plane occurs. 4th, Wrist, where the motions in two planes are nearly equal in amount. 5th, Hip, where to the rectilineal motions are added rotatory ones, but the extent of each considerably limited by the depth of the articulation. And 6th, Shoulder, where the same movements occur, but much more extensively, a limit being put to them by the arrangement of the ligaments, and not by the contour of the bones.

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to be 0·8 inch. It is most probable, however, that it will be found to vary in different individuals. I select the head of the fibula as the place to measure from, as it is the point below the knee that can be most accurately felt.

ARTICLE III.—*Account of the Bathing Seasons*, 1854 *and* 1855. By P. M. MESS, Med. Chir. et Artis Obst. Doctor, Director of the Sea-bathing Establishment at Scheveningen, The Hague, Holland.

TWO years have elapsed since my last report, and it may be judged that, with the great number of patients who have followed the cure, many cases will be found which may be regarded with some degree of interest. It may be considered that the *historiæ morbi* are very brief. They have been so written designedly; because I know by experience that the annoyance of reading long details is not always to be compensated by their utility.

The patients who have been resident during that time in Scheveningen may be arranged under the following rubrics :—

I°. Affections of the system of the *nervi sensorii.*

To these belonged :—

a. Cases of universal excitation or of universal diminution of sensation, and of the influence of the innervation ; *Hyperæsthesia, erethismus nervosus: Anæsthesia, torpor nervosus.* Between these were other cases, which afforded evidence that the *nervi motorii* partook also in the affection. Such cases belonged to the minority, and then showed, very nearly always, indications of implication of the *centra nervorum.* Females constituted three-fourths of the patients under this division. As causes must be admitted, defective education of body and mind, convalescence from long diseases, the *stadium pubertatis,* disturbed nutrition, loss of blood, catarrhs, impeded function of the skin, noxious habits, etc. In the absence of really organic diseases, either in the *centra nervorum* or in other organs, or where the suffering was not of very remote standing, or of hereditary origin, the effect of the treatment by the sea-baths might be regarded as generally very favourable throughout this group of affections.

b. Cases of *neuralgia,* under the form of prosopalgia, hemicrania, neuralgia intercostalis, ischias postica, neuralgia cruralis, etc.

c. Melancholia.

d. Epilepsia.

II°. Affections of the system of the *nervi motorii:* paralysis, spasmi, chorea, spasmus scriptorius, tremores, etc.

III°. Affections having their seat in the muscular and tendinous textures ; as rheumatism, in the form of headache, pains in the joints, and in the loins.

IV°. Affections having their seat in the organs of respiration, and circulation : tuberculosis, catarrhus chronicus, asthma, tussis convulsiva, great sensibility to changes in the weather, and thence frequent attacks of bronchitis, in children tendency to renewal of seizures of angina membranacea, and cardiac disorders.

V°. Affections belonging to the organs of the *abdomen :* disturbed digestion, retarded peristaltic action, hæmorrhoidal disease, hypochondriasis, diarrhœa.

VI°. Affections of the uropoietic and generative systems: Bright's disease and albuminuria, chronic inflammation of bladder, incontinence of urine, spermatorrhœa, amenorrhœa, dysmenorrhœa, and disorders during and after pregnancy.

VII°. Affections having their seat in the blood: scrofulosis, including certain forms of caries and diseases of the joints, chronic gout, and chlorosis.

Under these heads are embraced the various diseases which presented themselves at Scheveningen, in the years 1854 and 1855, in search of recovery or amelioration by means of the sea-bathing cure. I need scarcely tell, that some patients appeared disappointed in their expectations, and that to others the result was really somewhat unfavourable; but the greater portion left the establishment either greatly improved, or with health entirely restored. The reasons for this were various. Magic virtue, which some appear willing to attribute to the sea-baths, belongs as little to them as to any other remedy, by means of which science seeks either to soothe, or to diminish, or to dispel human suffering. The term magic virtue is used advisedly: for I was, indeed, often astonished at the impatience displayed, not only by the patients, but even by their physicians, when a complaint which had already lasted many years, which had been aggravated by prejudicial habits of living, and which was tormented still by a whole farrago of medicaments, could not be removed or alleviated by a course of baths for three, four, or, at most, five weeks. Such individuals forget, firstly, that it is usual with many to feel themselves worse during the first fortnight, under the influence of the sea air and the bathing. They become often languid, fatigued, do not sleep soundly, or are oppressed with drowsiness; and their discontent on this score frequently tends still farther to their prejudice. Then succeed the one or two remaining weeks, and the prospect of a more favourable issue begins to become apparent; but the period allotted for the cure has already elapsed, and the patient returns home, exclaiming often unjustly: *oleum et operam perdidi!* Were these persons to evince greater patience, or if they were willing to renew the cure before finally judging, I should be less obliged to range them among the unreasonably disappointed.

Some others, left to themselves during the cure, applied it unsuitably, or did not keep in mind sufficiently for what purpose they were come, thinking it should be enough to take the bath daily, and taking no care to attend to the other prescriptions, as to diet, or rest, or the benefit of the sea air, etc. The patients who belong to this category have not the right to deny the good influence which the sea-bathing cure has on many diseases. That the cure has miscarried in such cases, is their own fault. Other individuals are to be found, who, after having repeatedly resorted to the cure, could not establish a convalescence, notwithstanding the undeniable indication which existed for the sea-baths. The reasons often lay in the remote standing of the disease; but cases were very seldom to be found, in which there did not ensue at least a certain degree of improvement, and it becomes a question, if this should not have been greater, had the summer months during some successive years been devoted to a residence on the sea-shore. This may be proved subsequently by one or two *historiæ morbi.*

Lastly, I refer to those who not only did not find improvement, but rather became worse. To these belonged cases of tuberculosis, of cardiac disorders, of chronic diarrhœa with irritation of the mucous membrane, of arthritis anomala, of rheumatism the acute period of which had scarcely disappeared, and of plethora, with congestion to the brain. To these points we shall afterwards advert more especially.

In my Report for 1853,[1] I spoke with some fulness of the bad method in which the sea-bathing cure was frequently applied to children. Towards these the greatest prudence is demanded; and I believe that I have there said enough to render it unnecessary to return to the subject at this place. It has given me great satisfaction, that my colleagues, in Holland, as in other countries, concurred with me in opinion; and leaving, therefore, the youth less exclusively to the care of ignorant parents or servants, have secured a greater advantage from the treatment of these young patients.

Before proceeding to mention some special cases of the two last years, I must revert to those of some individuals, included in the Report of 1853, of which I could not then record the ultimate event. Among the female patients, we find there a girl of 19 years of age, with all the symptoms of scrofulosis.[2] The parents of this girl wrote to me eight months later, that the hard and swollen glands with which the neck was covered, and whose volume had already diminished to a half before she left Scheveningen, had disappeared totally, and that she was in the enjoyment of perfect health. I spoke, among the cases of persons suffering from diseases of the organs of respiration, of two young men, one 21, and the other 22 years old, both with tuberculosis of the lungs. They resided during ten weeks in the establishment, with no sanction from me for a plan which was in reality opposed to my views. But, as they did not consult me, and as they so acted by the recommendation of their physician, I followed my custom, not to offer advice where advice was not asked. The issue of this residence was, that the former died of hæmoptysis two months afterwards, and the latter, who returned to the establishment in the following year, died during the winter. And whilst I now write, I learn the death of a third patient, who, in the same unfavourable condition, followed the cure in the last season.

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[1] See *Göschen, Deutsche Klinik* 1853: *Balneologischer Bericht über die Bade-Saison des Jahres,* 1853, *in Scheveningen,* von Dr P. M. Mess; for some more general appreciation of which I refer to the accurate sketch, and analysis from the Dutch original, which has been given in the *Monthly Journal of Medical Science,* Sept. 1854, and which I believe proceeded from the pen of Dr Charles Wilson of Edinburgh.

[2] See *Deutsche Klinik,* l. c. in the second part, "*Ein* 19 *jahriges mädchen mit,*" etc.

Among the *neuralgiæ* occurred the case of a man, suffering from a vehement neuralgia supra-orbitalis.[1] This affection, which at the beginning of the cure improved, and at the end might be judged recovered, must still remain longer under observation, in order to justify a decision. A year later, however, I received a letter from him, stating that the neuralgic pain had not then returned.

Several interesting circumstances attended the convalescence of a lady 18 years old.[2] Her illness had already lasted five years, accompanied by somnambulismus, epilepsy, *erethismus nervosus*. It was before omitted to mention a pain seated in the *bursa mucosa*, below the ligament of the patella. This pain was so intense, that neither could a touch be endured, nor was the patient able to stand unsupported, and she was therefore compelled to employ crutches. She returned a second year. The epileptic attacks had disappeared, and the general nutrition was very much improved: the knee, however, was in the same state, and she still required crutches. She prognosticated that in two days the pain would cease. At the fixed day, she took a bath, and had scarcely entered the water, when she was suddenly seized with violent spasms in the affected leg. The pain in the knee, which had continued there for about three years, disappeared, and the sole of the foot touched the floor. On the same day, she complained of severe pain in the eye of the same side as the affected knee. The conjunctiva of the eye became red, accompanied by an abundant epiphora; but eight days afterwards this symptom had also subsided. The pain in the knee did not return; she ceased to require her crutches; the universal convalescence made great progress; and the parents judged a repetition of the sea-bathing cure in the following year superfluous, although this would have been more prudent, to improve her *erethismus nervosus*. In this case, her presentiment of what should happen might seem very remarkable, and her parents were inclined to impute to it the significance of a wonderful or preternatural event. But, when we reflect on her earlier state of somnambulismus, followed by epilepsy, which had left a high nervous excitement, such singular phenomena lose their character of wonder, if they ever possessed any, and appear only as part of a series presenting many of a kindred quality.

A patient with *aphonia hysterica* remained in the same state, and it was not till two years later that the voice returned suddenly. Another case of hysteria, with violent attacks of prosopalgia, improved very much during the cure. It seemed to me that there could be no question as to the necessity of her returning in the following year; but her health at that time was so much restored, and reasons of another kind rendered her return so difficult, that it was not insisted upon.

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[1] Loco citato.

[2] See the third part of the Report, "*Das die Chlorose,*" etc.

We proceed now to select from the various rubrics some cases which we believe to be the most interesting. With regard to the affections under the first rubric (*a*), it may be said that the influence of the sea-baths was generally excellent. This was especially proved by the case of a woman, 28 years old, who was during many years in a state of continuous excitement. She dreaded the slightest agitation and noise, was very quickly fatigued by walking, and had usually a defective appetite; or was feverish after meals, especially in the afternoon, with considerable augmentation of the motion of the heart. She did not sleep soundly, and complained often of startings. She had already used the sea-baths during three years, and each year showed improvement. On returning the last year, she could not use more than two or, at most, three baths a week; because the employment of these, to which she always resorted willingly, was sometimes succeeded also by the spasmodic movements. After an artificially excited exanthem, between the scapulæ, I observed that these startings diminished, and at last disappeared. I saw her again two months later, when she told me that she had not enjoyed, for many years, so easy and perfect a state of health.

A lady, 30 years old, naturally of irritable constitution, whose education during her youth had proved the source of much subsequent nervous suffering, left us in 1854, very dissatisfied. The cause of this lay partly in the inappropriate method in which the cure was at first applied. At a later period she asked my advice, and a different plan was adopted. The principal complaint was of wandering pains, which were seated, now in the stomach, and now in the head, or in the limbs, or in many other parts. With great bodily agitation, she had an incessant flow of speech, and presented the pure image of erethismus. After returning home, she began, in the month of January, to feel herself gradually improved; and her resolution, taken at the end of the season, not to repeat the cure, as its effects had been so negative, was changed, and she again repaired to Scheveningen. The improvement had indeed made progress; and, notwithstanding the erethismus is a congenital one, she will doubtless improve still more, provided some premature decision do not interfere to prevent a renewal of the treatment.

A lady, 20 years of age, liable to hysteric attacks, presented the particular symptom of sudden paralysis of both legs, at different periods. These attacks lasted one or two hours, and disappeared for the time totally. She improved very little during the treatment, which, especially at first, happens often, in such affections, and the invalid left us in a melancholy state. Some months later, I learned from her physician, that, when returned home, she began to improve slowly, and was then perfectly recovered. We observed the same result as to a female patient, who, after a typhus fever, suffered from very severe attacks of tussis spastica. I saw her after a residence of some weeks, and, although the affection had not totally disappeared, she was much better.

The effect was less favourable in the two following cases. A young lady, 30 years old, presented a group of symptoms, which, without doubt, I should have held as of a hysteric nature, had she not, seven or eight years ago, hurt her head by a blow, when the suffering began half a year afterwards. It was very difficult to determine the ætiology. The principal complaints were dread of the least bustle, for particular sounds, for any conversation, for the touch of certain objects, and reluctance to walking exercise; but it seemed to me that the fear for bodily motion was more apparent than the real incompetence. She took, notwithstanding, a bath every two days, with great enjoyment, and walked daily on the beach. Although she was far from decided improvement, her parents, like myself, thought, after six or seven weeks, that a change was perceptible. What effect the winter may produce, I cannot determine; but some benefit may be expected from a repetition of the cure.

The second case is that of a lady, 28 years of age. Her physician wrote to me: "She presents quite the image of the Proteus milleformis, which you can conceive for yourself; an erethismus nervosus without limits, with a reaction not in measure with the stimulus. Except scrofulosis, with a perpetually recurring erysipelas, till her twenty-first year, she had no special ailment, but she has since suffered from anorexia, gastrodynia, aphonia, borborygmi below the costæ spuriæ, constipation, etc. The menstrual function alone remained healthy. She has fixed her only hopes on the effect of the sea bath." The sufferer was destined to be soon disappointed in this respect. I found her in a condition exactly similar to that described by her physician. With her great feebleness, her inability for exercise, and deficient development of heat, there existed not only contra-indication for the sea-baths, but the influence of the sea air itself was too powerful; and, after a residence of two or three weeks, her state becoming worse, we advised a cessation from a treatment which, generally said, ought not to be applied in such feeble individuals as this lady.

Under the cases of Anæsthesia, two are worth relating. A nobleman, 30 years old, presented a slight degree of paralysis of the legs, with affection of the speech. His physician assigned as causes, chiefly onanism, and afterwards excesses in Venere. He tottered in his gait, and hesitated for the words he desired to utter: in short, he was in a state of general nervous torpor. He got, on alternate days, a sea-bath and an electro-galvanic-bath, and supported both well. It was without doubt, that, after a daily alternation of these two methods of treatment, there was a perceptible improvement during three weeks; but private affairs called him home. We do not venture to pretend that recovery would have followed in this case, because it was a question whether the brain or spinal cord was not suffering through organic disease.

In almost the same condition was a young man, 23 years old; adducing the same reasons for his nervous torpor, his general indifference, great debility, giddiness and palpitations. His look was dull, every night he perspired considerably, and had frequent seminal evacuations. His treatment was, besides the daily use of cold sea-baths at six or seven o'clock in the morning, at a temperature of 12° Reaumur, the application, in the evening, of horizontal and vertical douches on the perinæum and loins, with the regular enjoyment of the sea air, and recourse to suitable recreations. After six weeks, this patient was scarcely to be recognised, and he is now in a state of progressive improvement, with the promise of a complete restoration to health.

Some cases of Epilepsy have been observed, the result of which was very different. Upon some the sea-bath cure produced the most excellent effect. These were young individuals in whom the affection had not lasted long, and in whom I had no reason to presume organic disease of the nervous system. In cases of a contrary nature, the influence was negative. It generally ought to be said, that these patients require accurate observation and great prudence during the cure. With the view of stimulating the skin, and of promoting the influence of the sea-water, I give very often the advice to rub, during one or two minutes, the whole surface of the body, before and after the bath, with the very fine sand which is found on our beach; when a final dip is taken to remove the particles. Among the cases of nervous pain, many examples of prosopalgia and hemicrania received prompt improvement and recovery; as to which it may be added, that I received many months afterwards, from several patients of this kind, the intelligence of their restored health, and that they were able to endure fatigue, and to attend to their occupations, of which some time previously there could have been no question. Such was the case of a young lady, who suffered from so severe attacks of pain in the face, that syncope not rarely followed. Besides a daily use of the sea-baths, she received every two days a douche on the cheek. The influence was so speedy, that she had, during a cure of five weeks, only two slight attacks, which formerly returned often daily; and since, although the cure has not been repeated, she remains free from her pains. Some others were not so promptly fortunate; but, after a second application of the sea-baths, the recovery was very constant.

Among the patients with Ischias postica two are worth mentioning. The first had already suffered during two years. The pains were less than before, with indications of slight paralysis, limping gait, and general erethismus nervosus. Convalescence followed after the application of twenty-five sea-baths, and twelve douches, and frictions with sand on the surface of the leg and loins. But with the other, the affection had subsisted during from three to four years, and presented all the just named symptoms in a higher degree. A farrago of medicaments had been in vain applied. We adopted with this gentleman the same method of cure, and, although he improved, the recovery was still far from complete, and a repetition will be necessary.

Under the second rubric, we observed a case of chorea minor, which recovered; two cases of spasmus scriptorius, which remained in the same state; and some individuals with tremores. The following observation may be of some interest. A young lady, of 21 years of age, presented a continuous motion of the right arm. Except a degree of universal nervous excitement, she was in the enjoyment of good health. During the first three weeks, no change was observed under the employment of sea-baths and douches; but, after this time, awakening one morning, she was surprised to find that the arm remained quiet. This continued during the remainder of her residence, but two months afterwards I learned that the motions had again appeared. Seldom have I seen that in this kind of affection the recovery was instant, after the first course of cure; but the prognosis remains very favourable, and it may be uniformly expected, that by the repetition of the treatment a perfect recovery will follow.

Under the third division of disorders we included rheumatic affections. It was often the chronic state only which could be soothed, ameliorated, or dispelled by the different resources of our treatment. Some of these patients found most effect from the baths within the establishment, others from the sea-baths, others again from the exclusive use of the different kinds of douches. The indications here regulated the particular selection. A man who had already suffered six years from periodic pains of the arms, hips, loins, and the head, which affections increased or diminished with the more or less favourable states of the weather, improved under the first, and recovered under the second, course of cure. A young man, twenty years of age, who had been affected by an acute rheumatism, still suffered a year later from pains of the right arm and the left leg. Ten artificial baths, with decreasing temperature, and, at last, fifteen sea-baths, with frictions of the skin, produced the result of totally removing the pains.

Under the fourth rubric, we find the affections of the respiratory and circulatory organs. With regard to the former, we believe that enough has already been said with respect to tuberculosis. Without exception, we judge that, to patients with this affection, a residence on the shores of the North Sea will prove always prejudicial. Many persons suffering from bronchitis chronica; others for whom winter was a continuous source of catarrhi of the nose, throat, or larynx; some cases of asthma; and, especially, children with tendency to renewal of seizures of croup, or tussis quinta, received a great, and often speedy improvement. To these patients I give the advice, to commence the treatment between the last part of the month of July and the beginning of September, because at that time the sea air is generally milder, and the temperature of the sea higher. (15°–19° R.)

A young man, nineteen years of age, attacked four years previously by scarlet fever, had suffered since from very severe attacks of asthma. Percussion and auscultation proved, that in consequence of this disturbed respiration, emphysema had formed; and that the continuous recurrence of catarrhi, as well as of spasms, which now ensued, was more the cause of the periodic breathlessness than the original asthma. Therapeutic means procured him scarcely any alleviation. Every change of weather renewed the attacks; and feeling the air of the evening to be very noxious, he feared to go out as soon as the sun had set. He came in this condition to Scheveningen, and, although I found no contra-indication, I feared notwithstanding many attacks before he became habituated. He began the treatment cautiously; he walked, in the beginning, during the greater part of the day on the beach; and, in the second week, he was already able to go out in the evening without prejudice. He proceeded with taking half a dozen lukewarm baths, and had at last thirty or forty sea-baths. During a residence of from twelve to fourteen weeks in Scheveningen, he complained only twice of very slight attacks of difficult breathing; and he, and his parents, told me, that he had not enjoyed, for many years, so easy and perfect a state of respiration. It ought to be said, that we do not believe that pulmonary emphysema is to be cured by sea-baths or sea air; but we wish to maintain that, by obviating the morbid sensibility of the lungs and bronchi, and by diminishing the leaning to chronic catarrhus of their mucous membrane, the attacks of asthma become less in number and in severity. And, that the sea air has often a sudden effect on the nervous system of the respiratory organs of such patients, is proved by many of them who, coming for a few hours to Scheveningen, remain free from their breathlessness, whilst walking during this short time on the beach.

The recovery of children who suffered from tussis quinta, followed by bronchorrhœa, was almost universal. Regarding some others, who had been liable to frequent seizures of angina membranacea, I received intelligence that no recurrence of the disorder had been observed. It may be unnecessary to prove this, by relating some cases more particularly; nor is it requisite to add, that these patients demand the utmost prudence and observation during the sea-bathing cure. Under the neglect of this, bad colds are very often the consequence; during which, of course, the treatment ought, for many days, to be deferred or stopped.

To those affected with cardiac disorders, on the contrary, the use of the sea-baths may prove fatal. Exception is to be made for what is called nervous palpitation, without mutation in the texture of the heart; but these do not strictly belong to the cardiac disorders. They are rather the symptomata morbi, as of erethismus nervosus, chlorosis, and some other causes of general suffering. We came very often to the supposition, and thence to the conviction, of disease of the heart, merely by the complaints that the first or second bath was followed by more or less of breathlessness. Persons suffering from these affections, and taking the sea-baths against our advice, soon learn their error; and I repeat my full persuasion that, in cardiac diseases, the sea-bath, not exclusively as such, but simply as a cold water bath, is generally dangerous. The lukewarm sea-water baths, with the inhalation of the sea air, are, on the contrary, for many of these patients, a great source of alleviation.

Under the rubric of diseases of the digestive organs, we find denominations which denote more the symptoms than the affections themselves. The causes were of course very various, and we found among these, especially, a prejudicial habit of living, in taking highly nutritive and stimulating meats and wines, without the use of the necessary bodily exercise: whence catarrhus of the stomach, constipation, hæmorrhoidal disease, hypochondriasis cum materiâ, etc. It is superfluous to add, that, to these patients, the sea-bathing cure is for the moment of great use, but remains so rarely; because, when returned home, their previous enemy becomes once more their chosen associate: the natural life of Scheveningen is to be exchanged for that of sitting the whole day on the office-chair; the fresh sea-breeze is replaced by the close air of the counting-room; and the better regulated and more wholesome diet is thrown aside for richly dressed dinners and the fragrant bottle of wine. A like disappointment did not await those who followed out the cure at home, with a simple diet, and the observation of the general rules of hygiene. With these the improvement, begun at Scheveningen, almost always increased as a reward for their temperance.

Some cases of chronic diarrhœa, without irritation of the mucous membrane, improved and finally recovered; whilst, where irritation existed, the lukewarm sea-water baths, either simple, or with addition of other ingredients, were of great benefit. That, under the latter condition, the application of cold baths is contra-indicated, may be proved by the following instances. Two young men took the cold sea-bath, immediately after their arrival, in compliance with the direction of their physicians. For one, it was enough to take three, for the other to take five baths, in order to aggravate the irritation of the mucous membrane. The consequences were, severe colic pains for both, with dysenteric symptoms in the former, and diarrhœa in the latter. A lapse of four or five days was required before these symptoms had disappeared, after which we proceeded with the application of lukewarm sea-baths, with the addition of the Kreuznacher motherwater, and the use of increasing portions of tepid cow's-milk. Both left the establishment considerably improved.

Two cases of the disease known amongst us as the Aphthæ Orientales improved during the cure, but became worse in the beginning of the cold weather, in the month of November. But it was not to be expected, in a disease so obstinate and of so long continuance, that recovery should immediately follow; and perhaps still more ought to be hoped here from the strictest observation of diet, than from the employment of any other remedies.

Under the rubric of the affections of the uropoietic and generative systems, we observe many cases. One of these was that of a man forty-five years old. He had already suffered during two years from pains in the bladder in voiding urine, with the excretion of a great quantity of mucus. This catarrhus had been formerly very much diminished, but was followed by incontinentia urinæ. His physician had tried to complete his recovery by means of injections, but these were productive of too much suffering. After a preparatory course of six or seven lukewarm baths, he took twenty-five sea-baths, and received several douches on the regio pubis, the perinæum, and on the loins. His age, and his great improvement during this treatment, gave promise of a total recovery. Such an application of sea-baths, douches, and, sometimes, of the electro-galvanic baths, proved to us often of great service in this paralytic condition of the bladder.

In the following case we anticipated a similar result. A lady, seventeen years old, was affected by incontinentia urinæ nocturna. At the time when I first saw her, she had already been using the sea-baths during four weeks. The effect of these had been negative, and I therefore had recourse to the electro-galvanic baths. It was remarkable how immediate was the effect, during eight or ten days, but she could not stay longer. I met her some weeks after, but the improvement had not continued. It may be said that we have not reason enough for terming the whole result merely negative; but, on the other hand, every one knows, that in this very annoying affection of young people, every new remedy offers at the beginning, for the most part, some amendment, but it is not always an enduring one. In the last two years, I have observed three cases which recovered immediately after the first course of cure; some others in which the *incontinentia* disappeared slowly; whilst I recollect four female patients with whom nothing proved of any advantage.

We observed the influence of the sea-baths on two cases of albuminuria. One of these presented still the symptoms of Bright's disease; whilst, in the other, the microscope did not show any proofs of a morbid state of the kidneys. In the latter, the abnormal excretion had lasted two years, and I did not receive the information that morbus Brightii had previously existed. After a residence of four weeks at Scheveningen, and the employment of the special treatment, the quantity of albumen was quite the same. With regard to the former, I learned that Bright's disease was observed so far back as seven years ago; when dropsy had occurred, and a fatal issue appeared probable. Since that time he had slowly improved; but still suffered habitually from dyspepsia, slight dyspnœa, and other various indications of imperfect health. In his urine we observed albumen, and a few more direct proofs of the presence of Bright's disease. He told me, that after previous applications of the sea-bathing cure, he had improved always; and such, indeed, was the result in the present year; the quantity of albumen became less, and the dyspepsia was greatly mitigated. I do not venture to determine whether the sea-bathing cure is indicated or not, in this affection of the kidneys; because my own experience is not richer than that of others, and, to give a positive opinion, pro or contra, the number of cases ought to be greater. In the chronic period, it is possible that we may observe that life can be prolonged; but I doubt whether we shall generally make greater progress towards actual recovery, by sea-baths than by other remedies. It may be superfluous to speak as to the acute *stadium*, because nobody will entertain the idea of sending such patients to the sea-baths.

The treatment by means of sea-baths, ascending douches, and especially the application of carbonic acid gas, was of the greatest utility to the patients suffering from debility of the generative organs, in consequence of masturbatio, pollutions, urethritis chronica, fluor albus, etc. Among the great number of cases of dysmenorrhœa and amenorrhœa, were many to whom the first course of cure sufficed for attaining recovery. In others, on the contrary, the effect was not so speedy. With regard to the former, we have the instance of a young lady, in her twentieth year, who had suffered from a long illness. Although now, for a year, otherwise totally recovered, the menses had not returned. Her face and eyes were often injected; and, from time to time, she had bleeding from the nose. After the use of twenty sea-baths, the menses returned during her residence at Scheveningen; and I learned later that the following periods recurred regularly.

With a few words I revert to what I said, in my report of 1853, with regard to women in the state of pregnancy. To those who are of a plethoric constitution, the baths are often prejudicial. Those, on the contrary, who have already frequently suffered from abortion, in consequence of feebleness and anæmia, may take the baths, not only without dread, but with advantage, during the first five or six months. In the last two years, I observed some very interesting cases, in which a threatened abortion was prevented, exhausting vomitings were diminished, and the female became stronger and cheerful, and was at last delivered of a healthy child.

The last rubric includes some of the diseases of the blood. With regard to chlorosis, it may be said that, when this affection has not made too great progress, the sea-baths, the sea air, and a nutritive diet are of the greatest utility; although it is necessary that the treatment should be followed by the exhibition of iron. But when there is a state of great feebleness, when daily exercise on the beach is difficult, when the waxy complexion approaches to the look of œdema, such individuals rarely tolerate the sea-bathing cure, before having followed a treatment at one of the chalybeate watering-places of Germany, or at that of Franzensbad in Bohemia, to which I attach a preference.

Among the patients affected with scrofulosis many are to be found every year with ulcers on the neck, the limbs, and other parts of the body. We observe that ten or twelve baths are often enough to change the flaccid and greyish-coloured surface into a healthier one; and such ulcers, to which other modes of treatment had been applied in vain, were often in a few weeks fully cicatrized. The same result is often attained in chronic inflammation of the joints, especially in cases with caries. The preceding symptoms of scrofulosis were observed, among others, in a boy fourteen years old. When I saw him, he was suffering from photophobia, blepharitis ciliaris, ulcers of the cornea, inflammation of the internal surface of the nose, fetor in the mouth, and inflammation and suppuration of the joint of the left thumb. He began the treatment, by being encouraged to play the whole day in the warm and sheltered hollows of the downs, drinking daily two large glasses of goats'-milk; and proceeded afterwards to take a dozen lukewarm sea-water baths, with daily active exercise on the beach. The boy improved so much on this plan, that, in the fourth week, we did not hesitate to have recourse to the baths in the open sea; and, when he left the establishment after a residence of twelve weeks, all the symptoms detailed had disappeared. The sinus of the thumb was closed, although the swelling still subsisted to a small extent. On his return home, I feared that the great difference between the air and life of Scheveningen, and those of town and school, might prove prejudicial to his state of health; but I saw him two months later, and he had, on the contrary, still much improved.

Two cases of diabetes mellitus occurred at our watering-place.[1] One was of a girl thirteen years old, and the other of a young man, in his twenty-third year. The thirst, the quantity of urine, and of sugar diminished in both cases, as shown by the subjoined analysis.[1] The appetite increased, and the consolidation of the textures made great progress. They left us, however, not recovered, and I heard nothing of them subsequently. It became our inquiry, in what way the sea-bathing cure exercises its influence in diminishing the quantity of sugar in diabetes mellitus? To give on this question a positive answer is difficult, and especially because we believe, as the note appended has shown, that in the pathology of this disease we have not made decided progress. The explanation which seems to me the most plausible may be, that the sea-baths, having the quality to excite the digestive function, almost always disturbed in diabetes, afford the opportunity to administer more animal food; and it was so proved by these two patients, who could, every day, have recourse freely to a meat diet, for which at first they had an aversion.

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[1] It may be remarked, that although I put here the diabetes mellitus among the diseases of the blood, it ought not to be a proof of my conviction that this abnormal product of sugar has only its origin in a blood diathesis, and in no other. Have others better grounds for ranging the diabetes under the diseases of the uropoietic, or the nervous systems, or under those of the liver? Every such localization has, I think, its pro and contra. With respect to the uropoietic system, enough has been shown latterly, to demonstrate that this can be no longer a question, because sugar has been found in the blood, in the perspiration, in the saliva, etc. It was then held to be a nervous disease, because sugar was found in the urine of patients who suffered from certain affections of the brain, although Frierichs in Breslau, I believe, contested that it was not sugar, in these cases, but a product which he termed allantoine; or because sugar is to be found in the urine of rabbits, in which the fourth ventriculus cerebri had been injured. Broussais considered diabetes a disease of the blood; and another French physician thought that its existence ought to be ascribed to a decrease in the alkalies. At last, Bernard maintained the liver to be the principal source and seat of diabetes. He found sugar in the vena hepatica, whilst in the vena portæ it was wanting. Neither the scalpel nor chemistry, however, showed proofs enough to solve completely the problem. It may be true that the microscope exhibited some degree of atrophy in the cells of the liver; but in this atrophy the whole body participates. In this still doubtful position of the science with regard to the cause of diabetes, we have ranked this disease among the disorders of the blood.

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[1] EXAMINATION OF URINE.

GIRL.

	Before the Cure.	After 4 Weeks' Treatment.
Colour	Faint greenish-yellow	Darker yellow.
Sp. Gravity	1083	1031.
Smell	Honey-like	More normal.
Reaction	Slightly acid	Acid.
Sediment	Slight cloudiness	The same.
Urophaëine	Diminished	The same.
Uroxanthine	In excess	Less in excess.
Urea	Diminished	The same.
Uric Acid	Diminished	The same.
Chlorides	Normal	Normal.
Sulphates	Normal	Normal.
Earthy Salts	Diminished	Less diminished.
Alkaline Phosphates	Normal	Normal.
Sugar	$\frac{3}{4}$ %	$\frac{1}{3}$ %.

YOUNG MAN.

	Before the Cure.	After 5 Weeks' Treatment.
Colour	Very slightly yellow	Darker yellow.
Sp. Gravity	1045	1032.
Smell	Negative	Normal.
Reaction	Negative, or acid	Acid.
Sediment	A little mucus	The same.
Urophaëine	Diminished	Increased, but still minus.
Uroxanthine	In excess	Almost absent.
Urea	Diminished	Increased.
Uric Acid	Diminished	Increased.
Chlorides	Normal	Normal.
Sulphates	Diminished	Diminished.
Earthy Salts	Diminished	Increased.
Alkaline Phosphates	Normal	Normal.
Sugar	1 %	Less than $\frac{2}{5}$ %.

With regard to gout, we observed a few examples. To these belonged that of a man, forty-six years old, who had long suffered from pains in the hands, and right foot, with constant swelling in these parts. He was feeble, and his skin unhealthy, in consequence of a habit of overloading himself with superfluous clothing. He began the treatment with some lukewarm baths, which were immediately followed by two or three affusions of cold water. In the second week he took the sea-baths, with so good a result, that after the second course of cure, the pains had disappeared, and the swollen joints had recovered their normal dimensions. It ought always to be recollected, that, in these diseases, the improvement of the action of the skin is of great importance with regard to the recovery.

We conclude this report by devoting a few lines to the condition of the establishment itself. However excellent it might be considered by many visitors, the building had several defects in a medical and economical point of view; and it has been the desire of the Dutch government to make such improvements as appeared necessary, to render the establishment in all respects adapted to its purpose. The edifice, which was already of considerable extent, has been enlarged by the addition of two wings, in consequence of which there has been an increase of from fifty to sixty in the number of the lodging-rooms. In each of the wings, of which one is for gentlemen and the other for ladies, are rooms for artificial baths, as well as for simple sea-water baths, for those with sulphuret of potass, the motherwater of Kreuznach, carbonic acid gas, chalybeate salts, etc. In other apartments are erected the different forms of apparatus for douches, for electro-galvanic treatment, and for the vapour-baths.

For the supply of the tepid milk of cows, asses and goats, a number of these animals is provided, which are fed with particular care; and a depôt of the usual mineral waters of Germany, and other countries, is every year renewed. Lastly, the patients, sometimes inevitably disappointed by the absence of fine weather, which is of very great value on the shores of the North Sea, will be somewhat indemnified by many means of amusement and exercise, which are to be found in the two halls of the establishment, and in the grounds in its vicinity.

ARTICLE IV.—*Injuries of the Head and Face.* By ROBERT WISEMAN, Surgeon, Cupar.

IN a former paper[1] we attempted to describe the effects of an injury to the head, under circumstances which rendered the amount and mode of application of the force nearly of a determinate character. It was found that the greatest amount of injury was in the direct line of the force, but on the opposite side of the head to the point of its application. The bones in this case were, to a very considerable degree, flexible; and we assumed that part of the disruptive power, shown to have acted towards the base of the skull, may have arisen from this circumstance, but that the greater part of the force must have been propagated directly through the brain. This is obvious, as the spring on the bones could not rupture the *dura-mater*—the bones would recede from, not penetrate, that membrane, and its rupture must have taken place, accordingly, from the *vis a tergo* acting through the brain.

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[1] See *Edinburgh Medical Journal,* December 1855.

Now, if this is a correct conclusion, it follows that fractures by *contre coup*, as it is termed, must always be fractures of elevation, and never fractures of depression,[1] and by this means be so far distinguishable from ordinary fractures. It, moreover, also follows, that in concussions of the brain without fracture, caused by diffuse or unconcentrated forces, the brain, in its mass, suffers a momentary dislocation, proportioned to the amount of force applied, and to the elasticity of the skull. When the elasticity is great, it may be expected that the chief damage will be found immediately under the skull, but at the opposite side of the head from the stroke; while, in less degrees of elasticity, or where the bones are comparatively rigid, the point of greatest injury may be expected to be towards the centre of the brain. On the other hand, when the rigidity of the bones is very great, a mere vibratory motion may be expected to be communicated to them by the stroke, which, if not sufficient to fracture the skull at the point of its application, may still cause a rupture of the vessels inside and an effusion of blood upon the surface of the brain. It were needless to add, that the application of these principles might perhaps prove of some service in the prognosis and treatment of injuries of the head, and tend to put some limitation to the general maxim, that all injuries of the head are to be accounted of a dangerous character. Were we to reason the matter statistically, perhaps, it would be found that wounds of the head are not much more dangerous than wounds of other parts of the body. This arises, not because of the unimportance of these parts to the animal economy, but because of their exposure to sources of frequent injury, and of their being protected by nature from the more serious consequences of such injuries, proportionably to the recognised great importance of their functions.

The danger arising from such injuries may be generally referred to two distinct classes of circumstances—the one from the risk of the setting up of erysipelatous inflammation; the other, from the more direct consequences of the injury. The first may be calculated to some extent, and so far obviated, by taking into consideration the general state of the constitution and habits of the individual; the other from a discriminating survey of all the circumstances bearing upon the amount and mode of application of the force.

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[1] The same sort of thing, and to a more marked extent as respects the parietes of the chest, applies to the ribs. These bones, by virtue of their arched form, when broken by a blow or crushed by pressure, and their fractures not coincident with the point at which the force had been applied, are always broken outwardly, so that the broken ends are not apt, under such circumstances, to penetrate the viscera of the chest. And thus, by observation, it may be usually readily determined, after death, whether the force had been applied directly over the fractured part of the bone or not.

We subjoin a few cases, partly in illustration, in some sort, of the above principles, and partly as explanatory of circumstances in the paper referred to; partly, moreover, because perhaps they may be found to possess some few points of interest on their own account to the professional reader.

The first is that of a fracture of elevation from a direct cause.

Case I.—Some years ago, a young man was employed in blasting land-boulders, and, by an unexpected explosion, the instrument employed in packing the shot, was driven through from the fore part to the back part of the head, but without penetrating the scalp in that direction. The instrument, it would appear, had either been extracted by himself, or reverberated in some manner, as it was not found in the wound. He was carried home totally unconscious. The scalp on the back and upper part of the head was soft and tumified, and the loose fragments of bone beneath were easily detected by a simple examination. The patient lived some two or three days after the accident.

The chief circumstance here to be noticed, refers not so much to the necessarily fatal nature of the injury as to the length of time the individual may survive subsequent to an accident causing a very great amount of injury to the brain. This, it would appear, depends not so much upon the amount of injury done to the brain, as to the direction in which the force may have been applied to it. When the force is great, and its direction in a line somewhat perpendicular to the base, in that case death will take place almost immediately, in so far as the functions of the general system are intimately dependent on the integrity of the parts situated near the base of the brain.

Case II.—A quarryman in 1829 met with the same description of accident. In this case, however, the brain was not penetrated. The right eye was completely destroyed. There was a circular wound through the orbitar plate of the malar bone, so as easily to admit the finger, which could be pushed in parallel to the axis of the orbit, to the extent of nearly three inches. The floor of the orbit was torn up, and the bones comminuted. A number of pieces of bone were extracted, but none of the material used in packing could be found, viz., finely comminuted trap-rock beat into a mass. The other eye appeared at the time to be comparatively little injured. Some particles of gunpowder were removed from it, and a very small wound on the margin of the cornea was observed penetrating the iris. The face and head were much swollen and blackened by gunpowder. The right hand and some other parts were slightly injured. The patient kept tolerably free from fever. The left eye inflamed, but the inflammation was as much as possible kept under, and in the course of a fortnight, the power of vision was partially restored to it.

A milky appearance of the pupil, however, and other indications of the formation of a cataract, began to manifest themselves, and despite of mercury and other means employed, the lens became latterly opaque, apparently from a small particle of foreign matter having been driven in and embedded in its substance. This caused inflammation, and partial adherence of the lens to the iris; and, we may mention, that a month after the accident, a fragment of stone weighing 9 or 10 grs. was extracted from one of his hands. It had become sacculated, the parts had quite healed over, and were perfectly free from pain, even when freely handled. Some four months later, a disagreeable discharge of matter continued from the socket of the right eye, and from the circumstance of the socket communicating with the antrum, there appeared to be no chance of its being got rid of without an operation, as the matter was retained there, and continually flowed over. By examination with a probe, a convenient point for a counter-opening was ascertained to be opposite the second molar tooth, counting from behind. This tooth was accordingly extracted, and its socket bored with a slender curved trocar into the antrum. A bent probe was next introduced from the mouth into the antrum, but could not easily be made to protrude at the socket. By examination from the socket, however, with another probe, the first one could be felt, and by withdrawal once or twice, and adapting its curvature, it was at length got through. A double silk thread was now easily passed, and a skein of cotton drawn through. The end of the cotton projecting into the mouth was next cut off, leaving only a small portion to lay hold of when necessary to change it. The plan succeeded perfectly, and the discharge over the cheek was entirely got rid of. The cataract was next to be managed, and was eventually removed by couching, after one or two failures, or rather partial successes, by the late Dr Mudie, St Andrews. By the aid of a lens, the patient recovered good eye sight; his health was also perfectly restored, and he was enabled to resume his old employment.

This was a case of very narrow escape from mortal injury. Had the body, causing the wound, struck in the least degree higher up, doubtless it would have penetrated through the socket into the brain; but, striking the malar bone, its force was here expended in the fractures and other injuries inflicted, so as to arrest its progress short of entering the cavity of the cranium.

Case III.—We select this as a case of ordinary fracture, or fracture of depression, all the better observed that, owing to some obstacle or other, there was no surgical operation. The deceased had been paralytic of one side, the same side on which he was injured, and died in consequence of wounds inflicted upon his head, two months after the injury. The wounds were inflicted by a slater's hammer. He was able to be up, and go about the house until two days before his death. The contents of the abdomen were apparently healthy, except the liver, which was considerably thickened at its inferior margin. The contents of the thorax were also in a healthy state, with the exception of the valves of the heart, leading to the pulmonary artery, which had a shrivelled appearance. The scalp on the left side above and behind the ear, upon the line of the suture, between the occipital and parietal bones presented three small wounds apparently each shut up by means of a fleshy granulation, but which admitted a probe to be introduced, which could be carried round for some distance, and pushed obliquely downwards in the direction of the brain. The scalp was not swollen, but imparted a peculiar feeling distinct from the healthy portions. A portion of the scalp, including the space injured, was dissected back. This dissection in the first instance, was not carried close to the bone, but a portion of the cellular substance and effused lymph, were at first left and subsequently removed. A triangular piece of bone, measuring about two inches one way, and three inches the other, was found depressed and broken into several pieces; the centre portion being the largest, was sunk about half an inch, and the other portions surrounding it inclined obliquely from the level of the surface of the skull to the margin of this depressed portion. Some of the pieces were only half broken through, and depressed at their farthest extremity. The skull-cap being removed, including the injured portion, it was found adherent throughout to the dura-mater; this membrane, however, opposite an angular point of bone was found perforated apparently through a process of ulceration, and a quantity to the amount of about half an ounce of thick yellow purulent matter lodged in the substance of the brain. The brain all round for some space was softened in its texture, and about three or four ounces of aqueous fluid intermixed with purulent matter, was found effused into the ventricles.

In this case there would be comparatively little concussion of the brain. The force was not a diffuse but a concentrated force, which would be almost entirely expended on the local injury; and the death of the individual evidently arose from a somewhat chronic inflammatory action, diffusing itself from the source of that injury, and this caused mainly by the irritation of a depressed portion of bone.

We next select the following, as exhibiting rather a curious example of locomotion, after the receipt of a severe injury of the head.

Case IV.—A countryman, in comfortable circumstances of life, returning home, on a dark night, mistook his way, and fell headlong into a whinstone quarry, over a precipice some twelve or fourteen feet in height. Stunned by the fall, he lay still for an hour or two, and lost a good deal of blood. The scalp was peeled from the front part of his head, much after the manner of that of a subject prepared by the anatomist, prior to removing the skull-cap, and inverted over his face. After coming somewhat to himself, he scrambled out of the quarry, and walked a very considerable distance, but could not by any means discover in what direction he was going. Early in the morning, he was seen in the middle of a field, and so strange was his appearance and gyrations, that the people fairly took fright and fled. Reinforced, however, by other parties, they ventured back, and the mystery was discovered, and the sufferer immediately conveyed home. There was a slight fissure in the frontal bone, but no depression. The scalp being replaced, the case did well, without the occurrence of any untoward symptoms.

The next two cases are intended to illustrate the compressibility or elasticity of the skull from forces, independently of the weight of the body, acting simultaneously on both sides of the head.

Case V.—In May 1829, a boy, about four years of age, while standing beside his father, who was greasing a cart wheel, was knocked to the ground, in consequence of the wheel accidentally falling over upon him. When taken up, the blood was streaming from his right ear and nose. His clothes were completely drenched with blood, and he subsequently vomited large quantities. The stream from his ear was said to be as large a stream as usually takes place in venesection. When first professionally seen, he was in a state approaching to stupor, but his attention could be engaged for a short time. There was an irregularity in the contractions of the pupils; they did not contract simultaneously, but the one contracted after the other—the pupil on the injured side contracting much quicker than that of the other side. There was no external blemish on the body, except a slight curvalineal dark mark behind the right ear, and the bone felt here as if a little flattened. The pulse was full and regular. Leeches and laxatives were ordered. Next day the integuments over the left eye were discoloured. The pulse continued full, and the respiration had become noisy. By pursuing a strict antiphlogistic treatment, the boy eventually recovered, with the single drawback of a strong squint in one eye.

In such cases, a very meagre diet requires to be continued for a considerable time, not only to prevent the access of inflammatory symptoms, but to promote the absorption of any clots that may have formed about the injured parts.

Case VI.—A strong man, advanced in life, was employed, with some others, in endeavouring to remove one of two steam-boilers. The boilers were standing parallel to each other, with a small space between them—somewhat smaller than the size of the man's head. The people employed were using sticks, as levers, to cant one of them over; but the weight of the boiler was such, as to force the sticks into the ground, after it had been raised to some little height, and the man, seeing things were going against them, and determined not to be beat, clapped in his head, which was seized as in a vice, while the blood squirted from his ears. He was extricated by his companions, and, being put under medical treatment, soon made a perfect recovery.

The rupture of the lateral sinuses, which probably took place in this and the preceding case, if held at the time as tokens of risk, was likely enough the very means provided by nature for an escape from the more serious consequences of the injuries.

The following case shows the effect produced by a rapid succession of blows, each intensifying the effects of the former just as a stone is broken by the successive strokes of a hammer, although the individual blows, if imparted at sufficient intervals, would be inadequate to the result.

Case VII.—Many years ago, a man was found dead at the foot of a very steep straight wooden stair, in a house where he had been drinking, and it was alleged that he had slid from the top to the bottom. There was a great amount of blood effused under the scalp, and a very dense thick mass of a coagulum, covering the surface of the brain under the dura-mater.

It is obvious, that the thick dense sheet of blood here found covering the surface of the brain, would cause a considerable amount of compressing force, and in this manner affect the parts situated towards the base.

We next give a case of concussion of the brain.

Case VIII.—The deceased had been employed in putting up a spout to a house, when the scaffold gave way, and he was precipitated to the ground. He lay senseless for three days, during which time he had been attended by the medical gentlemen of the locality where the accident took place. There was no apparent external injury on the head, except a small wound in the right temple, immediately behind the external canthus of the eye. His right wrist was found injured. He had vomited a quantity of bilious matter. Pulse slow, full and regular. Bowels constipated. Pupils sensible to the light, and rather contracted as otherwise. Countenance placid, and the breathing free from stertor. He was again blooded freely and had leeches repeatedly applied to the head. There was some difficulty in getting purgatives administered, as he clenched his teeth and refused to swallow them; but by compressing the nostrils, they were got over, and the bowels thoroughly acted on. The wound was laid open, but no fracture or fissure could be detected. Next day the pulse was still full, when he was again bled to ℥xx., leeches re-applied, and cold applications to the head continued. On the following day (Monday, the fifth day from the accident) he began to look up and show other signs of returning sensibility. The pulse was still full, and about 90, while the bowels continued sluggish. He was again bled to two teacupfuls, blistered, and purgatives administered. On Tuesday he was restless, passed a quantity of black bilious matter, and fell into a state of delirium. He sunk on the tenth day from the accident, his symptoms latterly being very much like those of a person labouring under typhus fever. The skull, upon dissection, was found to have received no injury; the dura-mater was adherent to it throughout, and had pretty much its usual appearance. The brain also presented few morbid characters. There was no effusion of blood, it was of firm consistence and presented no marks of increased vascularity. There was a slight effusion of serum, however, into the lateral ventricles, and a somewhat more copious effusion of the same sort towards the base of the brain into the spinal canal. The ligaments of the injured wrist were torn, and a collection of pus was found in the adjacent cellular substance. No other organs were examined. There is some difficulty in distinguishing, during life, suffusions of blood in the brain from cases of simple concussion. Indeed, all cases of suffusion, caused by external violence, are necessarily also cases of concussion.

Case IX.—Mrs D., an elderly person, being on a ladder leading to a hatchway in the floor above, the door of the hatchway came unexpectedly down, and struck a severe blow on the upper part of her head. She complained of much pain at the time, and for upwards of a week afterwards was sensible of pain from the blow, but had almost forgot the circumstance, when, three months subsequently, a somewhat diffuse and very painful inflammatory redness took place on the forehead at the junction of the hairy scalp. This refusing to yield to ordinary remedies, an incision was made into it, and the bone underneath found entirely denuded of the pericranium, rough, of a blanched appearance, and did not bleed on being rasped. It was of some importance to know whether the death of the bone was confined to the external table, or involved both plates of the skull, as, in the latter case, matter would inevitably form between the skull and dura-mater, requiring for its exit the use of the trephine. There was, besides, in this case, some difficulty in finding out the true cause of the disease, as the patient was disposed to blame cold and a variety of other things, and the blow she had received, being on quite another part of the head, was not mentioned till some time afterwards. But, if the damage to the *os frontis* was occasioned, as we suppose, by a sort of *contre coup*, then the likelihood was that the injury would be mostly confined to the external table, and that there would be comparatively little risk of an abscess forming inside of the skull. The patient was put under chloroform, and the actual cautery applied to the part. From time to time, several pieces of bone, belonging to the external table of the skull, have detatched themselves and been removed, and the case is progressing with every prospect of an ultimate cure.

CASE X.—A sober, healthy man, forty years of age, weighing ten stones imperial, when driving a cart, on a dark night, lately, in consequence of his horse starting and running away, was pitched from his seat in the cart, a height of from four to five feet from the ground, which was covered with rough road-metal. He was so stunned, that he could give no account of the particular manner of his fall, further than that he recollected of getting up and running after his horse and cart. He got assistance, and was brought home, and was able himself to put the horse into the stable. There was a large wound on the scalp above the left ear, while the cheek, on the corresponding side, was much abraded, and a considerable contusion on the cheek-bone. The wound, or rather wounds, of the scalp were of a semilunar character, with their convexities in front, one behind the other, communicating beneath, although an intervening belt of scalp separated them above. The pericranium was torn up, and the surface of the skull grazed and reduced to a considerable extent to a gritty powder. No fracture or fissure could be observed. The soft parts were very much shrunk, and retracted backwards. When first seen, some two or three hours after the accident, his pulse was slow and feeble, and he had a disposition to vomiting. His wounds were dressed, and he was bled next forenoon. It was subsequently observed, that the external ear of the opposite side was inflamed, and had a pustule upon it, while a considerable amount of ecchymosis was diffused on the scalp behind it, and upper part of the neck. What, then, was the cause of this appearance? As the man could not fall on two sides at the same time, and he did not fall on rising, while there were no indications of the wheel of the cart having passed over him; are we to set down these appearances as the effects of a *contre coup?* Be it observed, that the effects of the force, as shown on the opposite side, were rather of a grazing than of a concussive character, as respects the mass of the head, and that its direction was upwards and backwards, and not to the ear on the opposite side of the head. What then was the cause? Two hypotheses present themselves, in order to afford an explanation. It might arise from a violent action of the sterno-cleido-masteodeus muscle taking place in the course of the fall; and it is worthy of being kept in mind by medical jurists, that violent actions of muscles, whether occasioned by spasm or otherwise, do occasionally leave marks behind them, hardly, if at all, to be distinguished from blows by smooth blunt instruments; and it is somewhat curious, that the ecchymosed appearances following such violent muscular contractions, are not found over the bellies of the respective muscles, but over their tendons, generally towards their distal ends. The other supposition is, that the fall may have produced a rotatory motion of the man's body, and after expending its chief violence on one side, may have caused a slight injury to the other. The inflammation of the external ear would seem to render this the more probable supposition. It is obvious that the obliquity of the force in this case, as determined by the nature of the wound, forms the main element of a favourable prognostic. Had the wound been circular, so as to show the application of a direct force, taking into consideration the probability of *contre coup*, any judgment which could have been passed as to the result, must have been exceedingly unfavourable. The case did well, and a perfect recovery was effected in seventeen days.

We add the following case, although not immediately connected with the subject in hand.

CASE XI.—A person who, in his youth, had been much troubled with very severe and often repeated attacks of inflammation, especially in one of his knee-joints, and which was at one time considered almost a hopeless case of white swelling, so far recovered as to obtain a partial use of the limb. He was a good deal in the country, and generally rode a very small pony. One day, after spending some time in a carpenter's shop, sitting on his pony—his hat being hard packed in the crown with a feed of corn for it—on making his way out in a somewhat stooping posture, his head got jammed with the upper part of the door-way. The pony pushed forwards, and immediately, on clearing the door, the man fell off, but was intercepted in his fall by the workmen, so as to prevent further injury. His head was thus crushed down and carried backwards at the same time. He was found to have entirely lost the power of voluntary motion and sensation in every part of his body, arms, and legs, but his mind was not in the smallest degree impaired. He complained of great pain, especially on motion in the region of the neck at about the point of junction between the cervical and dorsal vertebræ. His pulse was full and regular, and counted between 85 and 90. Five teacupfuls of blood were taken from his arm, and an opium pill given to him, while he was placed in bed, in as favourable a position as possible. There was great difficulty in obtaining a proper examination of the injured parts, owing to the pain caused by the slightest degree of motion, and the helpless state of the body. There was no swelling or discoloration of the integuments, except a slight degree of redness at the lower part of the neck between the shoulders—no irregularity of the spine or crepitus was perceptible. With respect to the total absence of the power of sensation, he was tried in various ways, by pricking and pinching the integuments, and watching the countenance, but there was no indication of feeling present, nor when bled did he know that the operation had been performed until he inquired. Next day it was found that he had been feverish through the night, with intense thirst, calling almost incessantly for cold water. His tongue was blue over the left side, which might have arisen from some injury inflicted during the accident. He had been retching a good deal of acid matter, and his belly was becoming tumid. It was found desirable to have the patient removed to his own house, a distance of some two miles; and this was effected in the afternoon fully more easily than had been anticipated. The pulse still continued full and regular, and three more teacupfuls of blood were taken away from the old wound. The catheter was likewise used, and a quantity of urine drawn off. He had also a powder of calomel and scammony, while a salt water enema was had recourse to for relieving the flatulence. On the second day after the accident, he was found to have vomited a great deal during the night. He complained of great uneasiness in his arms, when permited to lie long in the horizontal position; he compared this pain to that of tight binding by a ligature, and frequently desired them to be looked at, to see if they were not inflamed and swollen. He felt relief by their being held, for a time, in a perpendicular posture; and this shifting of their position required to be very frequently renewed, as if the force of gravitation aided in the return of the venous blood. He had some tendency to sleep; and as the lifting of the arms seemed to afford him immediate relief, he would observe, as soon as it was accomplished, "now that shuts my eyes," and again dose over. But even when his arms were held in this position, in about twenty minutes they became again uneasy, as if the arterial current began to flag when acting against the force of gravitation, and he would call for them to be immediately put down. These alternate movements had to be regularly renewed. His laxative powder operated freely in the course of the night, but he was not in the least degree sensible of its operation. The blood, which had been drawn, contained much serum and no coagulum, but only a dark fluid at the bottom, of the consistency and general appearance of treacle. Upon the top of this fluid there was a thin film of fibrin spread over it in detached and shrivelled portions, scarcely cohering to it, but rather floating on its surface. It is proper to observe, however, that the nearly total absence of fibrin in the blood was a peculiarity of this person's constitution, as it had been observed on former occasions, and from this circumstance, there was, in his case, nearly a total absence of adhesive inflammatory action, there being almost no possibility of stopping the bleeding from any scratch or wound he may have happened at any time to have casually received.

As he was now constantly gulping up mouthfuls of acid liquid from his stomach, he had magnesia added to his drink. At night the catheter was again employed, and dark coloured urine drawn off, and the enema repeated. He could swallow nothing solid, but liquids could be gulped down without causing pain in the neck. There was comparatively little complaint of pain of the neck after the second day, his greatest uneasiness being referred to a state of tension of the abdomen. There was some slight return of sensation in the arms, as he could now feel them when they were grasped; he said it was not a natural but a dead-like feeling; there was still not the least degree of feeling in the integuments either of the belly or legs. On the third day he was found to have had almost constant vomiting during the night. The amount of fluid vomited was said to be about six times the quantity taken into the stomach. It was ejected in mouthfuls, and sometimes in a continuous stream, projected with great force to a considerable distance. To allay the vomiting, which, in consequence of the immobility of the body, was a most distressing symptom; strong tea was given him for drink in place of water, and with some little good effect. The arms continued to maintain the little sensibility they had acquired, but still required frequent changes of position. Whether the relief afforded by these changes was entirely dependent on the capillary circulation of the parts, or on some peculiar state of sensibility of the muscular tissues, did not very clearly appear. He could now move his head a little, and but a very little, from side to side, without the pains formerly experienced in attempting such motions; the neck was little complained of, except during vomiting. Some more blood was attempted to be taken from the arm, but sickness came on before half a teacupful was drawn off. The above symptoms continued with little variation till the period of his death, which took place between the third and fourth day after the accident. He retained his mental faculties to the last.

On examination, after death, the back part of the body was found to have a mottled appearance from infiltration of the integuments. An incision in the line of the spine was carried from the vertex a considerable way down the back, and the soft parts reflected aside. A considerable quantity of blood was found effused over the spleenii and complexii muscles, and extended downwards over the latissimi dorsi, nearly reaching the loins. Near to the part of the spine which had been complained of, the extravasation was deeper than elsewhere, and effused blood was seen on both sides of it. There was a considerable separation between the fifth and sixth cervical vertebræ, and a small piece of bone, about the size of a pea, being the tip of one of the articular processes, was found detached—the gap of separation was filled up by effused blood. On examining the front part of the spine, corresponding marks of injury were found. The anterior ligaments of the bodies of the vertebræ were torn through, and the intervertebral substance had a close resemblance to raw minced meat. No blood was found effused between the spinal marrow and its theca, but the anterior part of the theca was found of a dark colour, as if from engorgement, and a small quantity of dark coloured blood could be pressed out from between the theca, and the bodies of the vertebræ. This appearance extended apparently some distance from the seat of injury. The substance of the spinal marrow itself was much softer than usual. We took the opportunity of also examining the knee-joints; on cutting the capsular ligaments at the sides of the patellæ, a quantity of fluid escaped, having the appearance of vitiated venous blood. It was mucilaginous, and had exactly the appearance of treacle. Between ℥ij. and ℥iij. of this fluid must have existed in the right knee-joint, and a smaller quantity in that of the left. The capsular ligament of that examined had a tawny and shrivelled appearance, and the articular surfaces were in a great measure divested of their cartilagineous coverings. A ridge ran across the femoral articular surface of the right side, marking the limit to which the motions of the joint had been confined in extensions of the limbs. The muscles and neighbouring parts were of a yellowish colour, as if tinged with bile. If we are to date the effusions of blood from the last acute inflammatory attack of the joint in this instance, it must, in all probability, have existed for some twelve, fifteen, or twenty years.

The symptoms immediately preceding death were almost continued vomiting and hiccup, great tension of the abdomen, and labouring respiration. Some short time before death he complained of his neck, and wished the pillows altered, but this did not afford relief. Latterly, he had pain in his throat, and the matters vomited were of a black colour.

If we consult the works of Sir Astley Cooper and Sir Charles Bell for information in respect of injuries of the spine, we find that these authorities are not altogether at one on some points. Sir Charles seemed to regard the finding of extravasated liquid blood in the body, a twelvemonth after the cause of its extravasation, a sort of physiological impossibility. In the above case, however, there was strong evidence, as respects the knee joints, of blood or of a substance markedly resembling it having lain in this condition for perhaps upwards of fifteen or twenty years. It was Henry Cline, we believe, who proposed to operate, in such cases, and trepan the spine, somewhat after the fashion of trepanning for injuries of the skull—an idea which would seem to have been not less justly than severely criticised by Sir Charles Bell. Sir Charles objected to the idea of the deprivation of sense and motion, in such cases, being the immediate cause of death; and referred the latter symptoms very much to distension of the abdominal and pelvic viscera in connection with a remarkable flaccidity of their muscular parietes. The derangement of the actions of respiration, which latterly occur, he attributed to this cause as a direct and necessary consequence—the absence of the normal pressure, arising from the affection of the spinal nerves, on the stomach, intestines, and great veins being the source of the impeded respiration, and this again of the final cessation of the circulating function dependent on the action of the heart. Sir Astley Cooper never saw a case of dislocation of the spinal column without fracture, although it would appear that the fracture in such cases may be very minute, and that the injury may be sometimes more of the nature of a diastasis or separation of the vertebrae than of dislocation of their bodies, to any great extent. The period at which death takes place is very much dependent on the seat of injury. If at or above the origin of the phrenic nerves, or what is the same thing, at or above the third cervical vertebra, the accident, if severe, is immediately fatal; when below this point, it is said that paraylsis of the arms is seldom complete. If the injury occurs at the sixth or seventh vertebra, the patient is said to have some feeling and powers of motion, but if at the fifth little or none; and that the one or other arm may be more or less affected, or both equally so, according as the fracture is oblique or transverse. In the above case, it will be observed that the injury was between the fifth and sixth cervical vertebra, and that the symptoms detailed very much coincide on the whole with the observations of the authors just referred to, although it may be reasonably enough questioned whether the functions of the capillaries are not directly impaired, irrespective of the absence of muscular pressure.

ARTICLE V.—*Notes on the Formation of the Ricketty and Malacosteon Pelves, chiefly after the Researches of M. Meyer of Zurich.*[1] By J. MATTHEWS DUNCAN, M.D., F.R.C.P.E., Lecturer on Midwifery, etc.

IN the production of deformities of the bones rendered incapable of their natural resistance by rickets or malacosteon, there are two great causes to be considered, namely, the efforts of the muscles attached to the bones and that part of the weight of the body, in the erect position, super-imposed on the various bones. The sequel of this paper will justify the complete exclusion of the former of these causes from any important place in the explanation of the great deformities—at least, of the characteristic ricketty and malacosteon pelves of the human female. This conclusion might almost be arrived at on *a priori* grounds alone. For, if we compare the irregular action of any muscle, or set of muscles, to the influence of the great and steadily acting weight of the body, the unimportance of the former will appear, on account of its comparative slightness in physical force, its essentially intermitting and temporary character, as well as the antagonism of the various muscles, not to speak of its utter inapplicability had it any imaginable force or duration, to explain the changes in conformation actually produced. It is, therefore, to the weight of that part of the body above the pelvis, in the erect position, that we direct our chief attention—a weight in regard to the centre of which, its action and its balancing on the pelvis, so many elaborate researches have been made. The weight in question is transmitted through the lumbar vertebræ to the sacrum, and thence, through the iliac bones to the acetabula.[1]

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[1] The papers to which the author is chiefly indebted are to be found in Henle and Pfeufer's *Zeitschrift für rationelle medicin.* N. Folge, iii. Band. 1853. The author would also direct the reader's attention to M. Meyer's able articles on the Ossification of healthy Cartilage, on the same Process in Ricketty Bones, on the Erect Position, etc., in several of the later volumes of Müller's *Archiv.*

I shall not here enter upon those researches and observations which relate to the more intimate causes of that unnatural weakness of the bones, which is the real source of the deformities under discussion. This unnatural impotence of resistance is produced in two diseases, rickets and malacosteon: the former, a disease of infancy and childhood, common, in its less severe forms at least, and occurring everywhere; the latter a comparatively rare disease of adults, generally occurring in connection with pregnancy, and seen in certain unhealthy communities more than in others.

The researches of Meyer go very far to show that these two diseases are, in their essence, the same; that they are both the results of a process analogous to, if not identical with, inflammation in the affected bones. The cause of the marked difference in the deformity of the rachitic and malacosteon pelves, must, therefore, be sought for in some secondary peculiarity in the affected parts.

In rickets, the still imperfectly developed bones are affected. At the time of the disease coming on, the completed masses of bone are firm, and equal to the amount of resistance required of them; and it is only in cases of long duration of the disease, or of its most severe forms, that these ossified parts lose the firmness and solidity requisite to obviate deformity in them. The masses of cartilage not yet undergoing the changes preliminary to their becoming ossified, retain also their elasticity and capability of resistance. On the other hand, the masses of spongy cartilage, prepared for ossification, and lying between the already ossified cartilage and that yet unprepared for ossification, are very soft and yielding. In malacosteon, the completely developed bones of the adult are attacked by the disease in a form analogous only to the very severest cases of rickets, where, as already said, the ossified parts come to be affected. All parts of the bone are simultaneously weakened and made yielding in cases of mollities ossium.

Ricketty bones undergo changes of form by compression of the spongy cartilage already mentioned, and displacement of the parts connected together thereby. It is only in the severest cases that the solidified bony parts soften and bend. In such cases the deformity produced may be the same as in malacosteon. Malacosteon produces a uniform and general weakness of the bones, so that the once dense and hardest parts are liable to break; the looser and spongy parts to bend, and, as it were, fold up under pressure. It will be afterwards seen how much the simplicity of the mechanical condition of the bones in malacosteon simplifies the problem of the explanation of the deformity produced.

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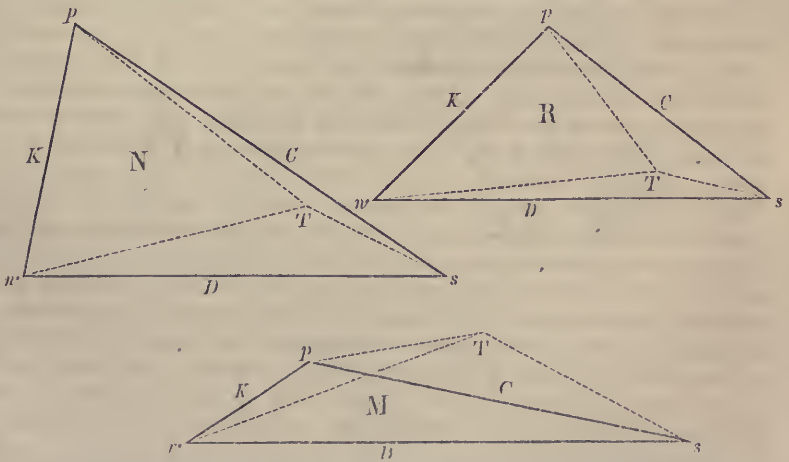
[1] For a further elucidation of this subject, the reader is referred to a paper on the Mechanical Relations of the Sacrum, published by the author in the *Edinburgh Medical Journal* for August and September 1855.

In limine, it is necessary to define certain points, lines, and planes, which are to be referred to. The pelvis is divided into two half-rings or circles, the upper and lower. Of these the former is formed by the sacrum and iliac bones, the latter by the ischia and pubic bones. The sacrum is divided into two parts, the upper or pelvic part separated from the lower or perineal part by a transverse line passing through the middle of the third sacral bone. The plane of the brim of the pelvis is divided into two parts, an upper and a lower, separated from one another by a line joining the two ilio-pectineal eminences.

In comparing the ricketty and malacosteon pelves with one another, and with the normal pelvis, we consider, first,

The Profile Section (Figs. 1, 2, and 3.)

In this, the following lines form, one with another, a triangle. 1. The conjugate or antero-posterior diameter (*C*); 2. the sacral line (*K*), extending from the apex of the promontory (*p*) to the middle of the third bone of the sacrum (*w*); 3. a line from the last point to the upper part of the symphisis pubis (*s*), called the diagonal direct diameter (D). Through the plane of this triangle, at a point (*T*), passes a line joining the two ilio-pectineal eminences. From this point lines are drawn to the two angles of the aforesaid triangle at the promontory (*p*) and at the symphisis (*s*). These lines indicate the relative position of the two halves of the plane of the brim. In the normal pelvis, these two halves are, as is well known, almost in the same plane.[1]



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[1] Fig. 1 N, shows the profile section of a natural pelvis; Fig. 2 R, that of a ricketty pelvis; and Fig. 3, M, that of a Malacosteon pelvis.

In three characteristic pelves, the measurements of these lines were as follows:—

		C.	K.	D.
Normal pelvis, .	N.,	118 mm.	68 mm.	112 mm.
Ricketty „ .	R.,	74 „	66 „	104 „
Malacosteon „ .	M.,	104 „	38 „	134 „

The distances of T from the promontory (Tp), and from the symphisis (Ts), were as follows:—

	Tp.	*Ts.*
N., . . .	78 mm.	40 mm.
R., . . .	50 „	28 „
M., . . .	49 „	62 „

The distances of T from the conjugate C were as follows:—

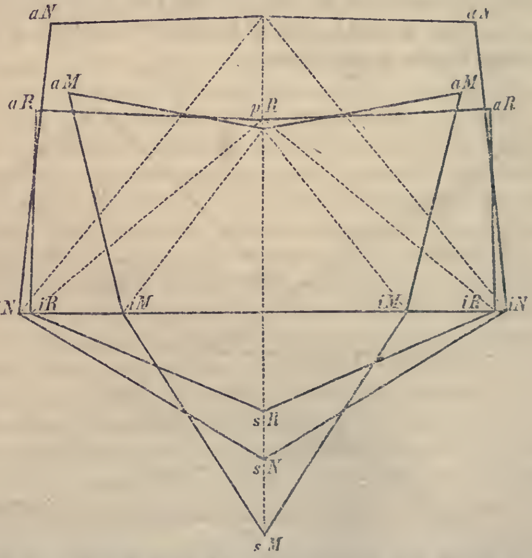
N., . .	3 mm.,	under the conjugate.
R., . .	11.5	„ „
M., . .	18 „	above the conjugate.

The distance of the same point T from the middle of the third sacral vertebra (w), were in all the three pelves nearly the same.

From these measurements it is evident that the two halves of the plane of the brim, which, in the normal pelvis, are almost directly continuous, form with one another, in the ricketty pelvis, an angle open above, and in the malacosteon pelvis an angle open below—in both cases of about 141°.

The Transverse Section.

In considering this section we shall regard as forming one continuous whole, the two halves of the plane of the brim, whose real relations to one another are described under the profile section.[1]



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[1] In this figure, N stands for Natural Pelvis; R for Ricketty; and M for Malacosteon.

Looking at the diagram, we find the promontory (*p*) in the deformed pelves approximated to the line (*ii*) uniting the ilio-pectineal eminences, almost to the same degree in both. The line itself (*ii*) is in the ricketty a little, in the malacosteon a great deal, shorter than in the healthy pelvis. Constructing triangles by the union of the three points, the promontory (p), and the ilio-pectineal eminences (ii) in each, we find the ricketty resembles the normal in base, but has the apex or promontory (p) much depressed; whilst, in the malacosteon pelvis, all the three points are approximated to one another. From the observation of these relations (as well as from other sources), it is evident that the causes of distortion act at the three angles of the triangle, and in a direction towards its middle point. In the uniformly yielding malacosteon pelvis, an uniform diminution of the whole triangle (pii, M) takes place; whilst, in the rachitic pelvis, there is an approximation of the apex to the base of the triangle (pii, R), but only a very inconsiderable diminution of the latter.

In the malacosteon pelvis, the sinking of the promontory draws along with it the iliac bone, especially at its upper part, where the spina illi superior posterior is observed to be flattened, in comparison with the spina illi inferior attached to the comparatively unmoved third sacral vertebra. Between the part depressed with the sacrum and the acetabulum, the ilium is bent from its natural arc-like form into an acute angle, in which it is followed by the ala and crest of the bone. The depression and folding of the ilia are accompanied by a shortening of the bones by compression, and they form a much more acute angle with the horizon than in the natural pelvis.

It will be observed, that, in both the ricketty and malacosteon pelves, the promontory is much depressed, but in very different directions. In the ricketty pelvis, the promontory has descended as if the sacral line (*K* Fig. 2) had described part of a circle around (*w*) the centre of the third sacral bone, the sacral line (*K*) being unaltered. The ricketty sacrum, as is specially noticeable in the whole ricketty vertebral column, contains points that are prone to yield (the spongy cartilage already described), but besides these it consists in great part of firm ossified portions, and of elastic cartilage, capable of the necessary resistance. The promontory of the ricketty pelvis, then, yields to the pressure, but with the vertical influence of the weight of the body, there has to be combined the resistance in the direction of the firm axis of the sacrum; of which two forces, the resultant is the downward and forward movement actually impressed on the promontory. Variations from this course will depend upon the degree of resistance of which the sacrum is capable, and on the degree of fixedness of the centre of the third sacral bone, on which, as a centre, the movement is made.

In the malacosteon pelvis, on the other hand, the promontory (p, Fig. 3) has descended almost vertically. The whole bony structures of the pelvis being uniformly, or nearly uniformly, softened, the weight of the body bearing upon the base of the sacrum, will tend simply to depress the promontory in a vertical direction, as might *a priori* be expected, and as really happens. In this way, also, the sacral line (K) is very much shortened.[1] The natural pressure of the heads of the thigh-bones upwards and inwards drives the acetabula in that direction. The upward part of the pressure tends to the same end in regard to the brim, as the depression of the promontory, and increases the obliquity of the pubic bones to the horizon. The inward part of the pressure has more important results—approximating the acetabula and folding together the pubic bones, so that only a slit-like aperture remains between them. The connection of the acetabula and pubic rami with the ischia, causes the approximation of these latter; while the depression of the iliac parts of the bones is naturally accompanied by a pushing forward of the tuberosities of the ischia. In the malacosteon pelvis, this is generally well-marked, and is the cause of great deformity of the sacrum. The perineal part of this last bone is strongly connected with the tuberosities of the ischia by ligament, and in the forward movement of the latter parts this part of the sacrum follows, the bone bending about its middle upon the upper or pelvic part, which is differently affected by other forces already described.

In the ricketty pelvis, a different series of changes takes place. The projection forward of the promontory is accompanied by a similar movement of the posterior parts of the iliac bones. These bones consequently rest in a more vertical direction upon the heads of the femurs. But as they, at the same time, undergo pressure downwards, their acetabular portions come to be applied more than normally to the posterior parts of the heads of the thigh-bones. The sinking in this direction of the iliac part of the acetabulum, drives the ischiatic portion inwards and forwards, as well as the whole ischium, and through the continuity of pressure the pubis will be pushed upwards, and the relation of the two halves of the plane of the pelvic brim, already described, will be produced.

In the characteristic ricketty pelvis, the ilia present none of the folding seen in the malacosteon pelvis. These bones appear to have retained sufficient firmness to be acted upon as levers, in which the power is applied above and behind, the resistance at the acetabula and the fulcrum at the sacrosciatic articulation between these parts. The softness and consequent bending inwards of the acetabular portions of the ilia, and change of the direction of the pressure upwards thereon, favours this divarication, or at least greatly diminishes the natural influence of the upward and inward pressure of the thigh bones in diminishing the same divarication.

In this sketchy article, I merely indicate the general direction and results of the researches of M. Meyer and others, on this subject.

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[1] The slight deviation of about 7° (shown in the figure) from the perpendicular actually found in Meyer's measurements, he explains by accessory circumstances occurring in individual cases, such as much sitting or lying, etc.

They will be found to be extremely valuable, in affording us not only an easy and satisfactory explanation of the mode of formation of these extraordinary deformities, but also a very easy method of describing to others, and remembering ourselves, the actual form of the parts of what at first looks as indescribable as an Indian puzzle. Besides this, they have most important bearings on the theory of the erect position, and other subjects of high importance in physiology.

CASE BOOK.

XV.—*Cases of Gun-Shot Wounds.* By ANGUS J. MACKAY, Assistant-Surgeon to the 2d Battalion of the Royals.

I. *Head and Neck.*

May 23*d*.—Patrick Seally, æt. 23, private in 2d Battalion Royals, was wounded by a musket ball in the trenches. **History and Symptoms.** He says that he was walking along one of the approaches, bending his head down, when a shot struck him behind the right shoulder. From the position of the head and neck, the ball passed upwards, and came out below the symphysis of the lower jaw. On admission, the orifices of entrance and exit have the usual characters. The ball does not seem to have entered the lungs, as no air passes out of either wound, nor is there any hæmoptysis, neither would any of the large vessels or nerves seem to be injured, although the ball must have passed very close to the main vessels of the neck. There is a good deal of swelling and pain, and I suspect a piece of his blue shirt must have been carried in by the ball. No foreign body, however, is discovered by the finger or probe. **Treatment.** Continuous application of cold—antiphlogistic regimen—rest, etc. 25th. Much the same—suppuration is beginning. 27th. The anterior wound is closing—still a good deal of swelling—a poultice is applied. 28th. To-day, as was expected, a piece of the shirt was discharged. 29th. Posterior wound continues to discharge, and a good deal of slough is separating. The anterior wound has healed—no cough—pulse quiet. The swelling has entirely subsided. **Result.** Gradually all the slough separated, and under the lotio rubra, the posterior wound rapidly filled up. He returned to his duty on the 22d of July.

Sept. 9*th*.—Private Thomas M'Donnell, æt. 30, 2d Battalion Royals, was wounded in the attack on the Redan, on the 8th September, by a musket ball, over the left eye. **Symptoms and Treatment.** On examination the bullet is found to have fractured the frontal bone, impacting itself, and driving both tables of the skull in upon the brain. The man was perfectly sensible, having no cerebral symptoms of any kind. A conical incision having been made, the bullet was removed, and also as much as possible of the broken tables. The dura-matter is found torn, and several spiculæ of the inner table are removed from the substance of the brain. Cold was ordered to be continuously applied, and, besides that, the treatment consisted of purgatives, and repeated small doses of Ant. Tart.

Progress. On the fourth day he complained of headache and throbbing in the wounded part. Pulse fuller and more rapid—no sensorial disturbance. Small doses of Calomel were now given along with the Ant. Tart.

Post-Mortem Examination.

On the sixth day slight spasmodic action was observed, which gradually increased into tetanic convulsions, in which he died on the ninth day. The wound in the scalp has an unhealthy aspect, it has not united in any part of its extent, and the edges look dull and sloughy. On removing the calvarium around the seat of injury, an irregular sloughy opening is found in the dura-mater about half an inch in diameter, and the neighbouring portions of this membrane have evidently been the seat of strong inflammatory action. This opening communicates with an abscess of one and a half inches long, in the anterior lobe of the cerebrum. Towards the outside, the brain is sloughy; round the abscess it is deeply vascular, while posteriorly its substance is softened. In it are found several minute spiculæ of bone.

II. *Chest.*

May 13*th*.—1. Patrick Duffy, æt. 27, private in the 2d Battalion Royals, was wounded in the advanced trench on the night of the 12th. He was brought into hospital at five A.M., on the 13th. He states that he was wounded the night before at ten P.M., but from scarcity of men he could not then be carried up further than the French camp, where he consequently remained all night.

Appearances and Symptoms.

Treatment.

On examination a rather jagged wound is seen on the posterior aspect of the right shoulder, and about two inches from the top. There is no orifice of exit, nor can any foreign body be felt anywhere subcutaneously. On further examination an emphysematous swelling, about two inches by three, is discovered in front over the right clavicle—over sterno-clavicular articulation. He states that he had hæmoptysis to the extent of a pint last night. When he coughs, air mingled with blood is propelled from the wound in the back. Pulse and breathing quiet. General expression weak and languid. It is evident that the ball has entered into, and lodged in, the lung; and it would seem that the pleura is more extensively wounded anteriorly, as all the emphysema appears over the right clavicle in front, none whatever being visible posteriorly. The pulse not being quick or strong, no blood was taken now (five A.M.), but Ant. Tart. gr. $\frac{1}{4}$, omn. semi-hor. was ordered to be administered. Pressure was also applied over the emphysema, to limit its extent if possible, and a compress was placed on the posterior wound. Nine A.M.—He is now sitting up in bed supported by pillows, and unable to lie down from oppression of breathing. The emphysema is spreading enormously—up the neck and down over both arms. Pulse quick and strong. He has spat up some more blood. He was now bled to the extent of a pound and a half. Continue Ant. Tart. *Afternoon.*—Is rather easier as regards breathing. Emphysema has extended as far down as the sacrum posteriorly. Pulse rising—bled again to a pound. Eight P.M.—Is now able to lie down with comparative comfort, and he has spat up little or no blood since last report. No increase of the emphysema. Breathing is easier, but as the pulse is again rising, and a slight tickling is felt in the chest, blood to the extent of 8 oz. was drawn, and a sleeping draught was ordered, independently of Mist. Ant. Tart., and to contain Morph. Mur. gr. $\frac{3}{4}$, and Vin. Ant. ʒss.

Progress.

During this time the sounds of the chest were completely obscured by the emphysema. 14th, Nine A.M.—Is rather better this morning—slept some during the night—tongue clean—very little pain in chest, and only a slight tickling, hardly deserving the name of cough, is experienced. He has had no return of the spitting of blood. Emphysema diminished—wound looking well—bowels open. Eight P.M.—Still progressing remarkably well. Emphysema almost entirely gone—no cough—no hæmoptysis—pulse quiet—continue Tart. Ant. 20th—The emphysema has now entirely gone. The wound has ceased to slough, and is healing rapidly. Omit Ant. Tart. 26th—Is now able to get up and walk about. Pulse quiet,

Result.

and though weak, his general health is good. No cough—wound looking well—dressed with Lotio rubra. To-day was given a little wine and additional nourishment. 29th—Very well—able to assist in the hospital.

This man perfectly recovered.

Appearances and Symptoms.

May 20*th*.—2. Michael Sweeney, æt. 27, serjeant in the 2d Battalion Royals, was in the trenches on the night of the 19th—was brought into hospital on the morning of the 20th. On admission, he states, that he was wounded by a musket bullet in the back, while turning round to reload his firelock, after having discharged it through the loophole. On examination there are seen two wounds, one on the posterior, the other on the anterior aspect of the right side of the chest. The ball would seem to have entered posteriorly, and there crepitation is felt as from the fracture of some of the ribs; anteriorly, also, the first rib is found broken.

Treatment.

There is a great deal of dyspnœa, and excessive hæmorrhage from the anterior wound. On breathing or coughing, air mingled with blood gurgles out of both wounds. He also complains of vomiting. He was bled immediately, and repeatedly during the day, and took frequent doses of Digitalis as a sedative. Died in thirty hours after admission.

Post-Mortem Examination.

Ball entered near the base of the scapula, fracturing the second, third, and fourth ribs, carrying a large portion of one of the bones into the centre of the lung, and passing out below the clavicle, fracturing the first rib in front. One or two of the large bronchi were injured. The right lung was completely engorged with blood. There were old adhesions as from a previous pleurisy, and tubercles in the apex of the right lung.

Treatment.

August 31*st*.—3. Private James Mulveahey, æt. 26, admitted with a musket wound of chest. On examination, the ball seems to have entered the neck in front, rather to the right of the trachea, and to have emerged between the sixth and seventh ribs on the right side. The upper surface of the sternal end of the clavicle is found splintered, and a piece of about one inch long is felt loose under the skin. From the orifice of exit there is considerable hæmorrhage. He complains greatly of pain and difficulty of breathing. Countenance pale—breathing rapid and anxious—eyes closed—expression of face painful—pulse quick—slight emphysema round both wounds. To avoid internal hæmorrhage, ʒxx. of blood was taken immediately from the arm, and quiet was enjoined. He expressed himself relieved by the bleeding, but complained greatly of pain in the region of the liver.

Progress.

Sept. 1st—Passed rather a restless night; Ant. Tart. ¼ gr. omn. ¼ hor., was now given. *Afternoon.*—Complains greatly of pain in the side. The pulse being very low, a general blood-letting was considered inexpedient, but twelve leeches were applied to the side—continue Ant. Tart. 2d—Pulse rising—complains of pain being worse—bled to ʒxviii.—bowels confined. To take Ol. Crot. gtt. ii. et Ol. Ricin. ʒss. This did not have much effect on the bowels, and an enema of Ol. Terebinth et Ol. Ricini was administered, and some Sulph. Magnes. was added to the Mist. Ant. Tart. 4th—He still complains of pain in the region of the liver; seventeen leeches were again applied, after which he expressed himself much relieved. *Vespere.*—Pulse rising, and he complains much of pain and cough—bled to faintness. The Ant. Tart. was discontinued for a few hours, until the faintness had passed off, and then it was resumed. 6th—This morning he expresses himself as much easier, having no pain, and little or no cough. Pulse quite quiet. The Ant. Tart. is now discontinued, and a little arrow-root is ordered.

The character of the wound, and the depressing treatment, left this man very weak. Wine was, consequently, cautiously administered, and nutriment given. He was transferred convalescent to Balaclava hospital.

Result.

The dangers to be apprehended in musket wounds of the chest arise from different causes, and at different stages. There is the first and primary danger from hæmorrhage, internal or external. There is the danger from emphysema. There is that from inflammation and suppuration in the track of the ball, and of subsequent inflammation, even after the ball has become encysted. Our treatment is intended, of course, to obviate those dangers, and theory and practice both teach us that blood-letting is our sheet-anchor. It arrests the hæmorrhage, internal and external, by derivation—it acts as a preventive of inflammation, and, if this be present, lessens its extent and force, and it renders respiration freer and less laboured. In *Duffy's* case, coupled with Tartate of Antimony, it was completely successful, a marked improvement appearing, even after the first bleeding. In *Mulveahey's* case, a glance at the report will show what marked relief was experienced after each abstraction of blood, local and general. True, a mere alleviation of pain does not prove a remedy to be doing actual good to the disease, but, when coupled with a relief to respiration, a lessening of the cough, and, in fact, an improvement of all the symptoms, we cannot doubt that it is, not only of benefit, but of immediate benefit.

Remarks.

In *Sweeny's* case, death resulted from internal hæmorrhage, which the repeated abstraction of blood failed to arrest. But the *post-mortem* examination showed that this was a hopeless case; for, although a smooth body (as a bullet) may (as in Duffy's case) become encysted, it is different with a rough detached piece of bone. This latter could not have failed (the primary danger from hæmorrhage being arrested) to have occasioned a fatal inflammation.

XVI.—*Case of Capillary Bronchitis and extensive Inflammation of the Intestinal Mucous Membrane.* By F. S. B. Francois de Chaumont, M.D., Assistant Surgeon, 1st Battalion Rifle Brigade.

Private Edward Goodenough, æt. 21, of the 1st Battalion of the Rifle Brigade, was admitted into the regimental hospital in camp, on the 28th December 1855.

History.

He enlisted about fourteen months ago, and after spending four months at the depôt, and three at Malta, landed in the Crimea about seven months previous to his admission into hospital. He is of robust constitution and has never been in the hospital before, except at Malta, where he had an attack of variola. From the 16th of last August up to the present time, he had attended as an out-patient on several different occasions, suffering from attacks of diarrhœa, which were, however, all slight, and yielded to the ordinary remedies. Was never troubled with cough, nor, to his knowledge suffered from any thoracic disease. As far as can be ascertained the present attack commenced within twenty-four hours of the date of his admission (ten A.M. Dec. 28th). **Symptoms.** His state was as follows:—Intense pain in the head and the anterior part of the chest;—breathing quick and impeded; great cough; profuse mucous expectoration; no dulness perceptible on percussion, but sonorous and sibilant, as well as sub-crepitant, râles audible over the greater part of the chest both anteriorly and posteriorly; heart normal; pulse full and compressible, about 120; tongue very dry and glazed; slightly furred at the edges; complete anorexia: distressing thirst; bowels moved once or twice in the twenty-four hours, but no particular abdominal pain; skin hot and pungent; countenance somewhat yellow and typhoid-looking—**Treatment Antimonials.** Antimonials were ordered to be administered. No great change took place during the day. Next morning the expectoration was found to be purulent and very tenacious; pain referred to sternum; pulse rather more full, about the same rapidity as yesterday; other symptoms continue—ordered half a grain of Antimony every hour. By the evening the pulse had lessened somewhat in force, and the patient expressed himself as being a little better. On the following morning (30th Dec.) the pulse was found to be exceedingly small and weak, and the surface somewhat cold. The orderly stated that he had been very delirious during the night, and the bowels had been opened four times, but that little had been passed, and that of a natural colour.—**Opiate enema. Stimulants.** Ordered to stop the Antimony and to have an Opiate enema. Also to take Spt. Ammon. Aromat. ʒss. Æthr. Sulph. ♏xx., every hour. Wine to be administered frequently. At mid-day the surface was much colder and more clammy, the fingers shrivelled, and the pulse indistinct. At five o'clock it was imperceptible, and some slight abdominal pain was complained of, but no purging. At nine P.M. the surface was very cold and the fingers more shrivelled; pulse quite extinct at wrist. He had been unable to keep down the wine latterly, but no vomiting had otherwise occurred. To take the stimulant mixture every quarter of an hour; also two grain doses of Calomel at the same intervals. Next morning the pulse was again perceptible, the surface not so cold, and the fingers less shrivelled, but no amelioration had taken place in the other symptoms. In this state he continued, with little apparent change, up to six A.M. on the 1st of January 1856, when he expired. **Post-Mortem Examination.** On opening the chest, 30 hours after death, the viscera appeared to be natural in situation. The left lung, when removed, was found to be rather deeper in colour than usual, and considerably engorged with blood, although crepitant throughout. An incision being made, the smaller bronchial tubes were seen to be filled with mucus, whilst here and there dots of thick pus were observable; the larger tubes were little, if at all, affected. The lung was slightly adherent to the chest posteriorly. The right lung was much more engorged with blood, and indeed the lower lobe presented almost the appearance of apoplexy. Here also the larger bronchi were comparatively healthy, whilst the smaller respiratory passages were greatly diseased. Inferiorly and posteriorly the lung was rather resistant to the touch, and on carefully washing away the blood from a section of it, grey hepatization to some slight extent, was visible. The heart was normal. In the abdomen the liver and kidneys were found to be normal, but the spleen was adherent to the abdominal wall, somewhat enlarged and highly engorged with blood. The stomach and upper part of the intestines were natural, but the latter were much discoloured inferiorly. On slitting open the canal, the mucous surface of the duodenum and upper part of jejunum was seen to be comparatively healthy, but further down the valvulæ conniventes were much inflamed and thickened. Slight invagination of the tube had taken place about the middle of the jejunum, but this had probably occurred shortly before death, as it was quite simple, there being neither inflammation nor obstruction. The commencement of the ileum was tolerably healthy, but soon signs of inflammation, increasing on coming nearer the cœcum, were seen. The valvulæ conniventes were highly thickened and congested; the glandulae solitariæ distended and ulcerated, and Peyer's patches converted each into a large well defined ulcer. This was especially the case at the lower end, where the last patch of glands was much thickened, and surrounded by a red elevated margin. The ileocœcal valve was thickened, and the cœcum and ascending colon much discoloured, inflamed and ulcerated. The transverse portion was tolerably healthly, but the descending part again became inflamed, whilst the sigmoid flexure and rectum were comparatively free from disease.

Remarks.

The above case presents some difficulty in a nosological point of view. It may be considered as one of fever, of a gastro-enteric type, where the bronchitis was an intercurrent complication. This was the view which Mr Williams, of this regiment, who first saw and admitted the patient, seemed inclined to favour; but the comparatively chronic character of most of the intestinal disease, as well as the almost complete absence of abdominal pain, and the very slight diarrhœa, seemed to preclude the probability of this being the proximate cause of his death, whilst there was certainly sufficient pulmonary disease to account for his demise. The appearance of the tongue, however, the raging thirst, and the typhoid expression of countenance, were all in favour of fever. The condition of the ileum, and especially the ulcerated state of the glandular patches, resembled what is seen in advanced cases of dothinenteritis, and similar to what I had occasion to observe (though not to so great an extent), in some of the cases of fever which took place at Scutari, in the winter of 1854–55. But the termination was altogether peculiar here, and so closely resembled the cases of cholera which had occurred during the summer and autumn, that I was induced to have recourse to the treatment by calomel above mentioned, and under which he appeared partially to rally. There had, however, been no cases of cholera in the regiment for at least four months, although one or two sporadic cases had appeared in other regiments of the division.

SEBASTOPOL, January, 4, 1856.

XVII.—*Two Cases of Excision of the Knee Joint.* By PETER BROTHERSTON, Surgeon, Alloa.

IN 1854, when visiting Edinburgh, I had frequent opportunities of seeing two cases, in which the operation of excision of the knee joint had been successfully performed by my friend, the late Dr Richard Mackenzie of Edinburgh, in the Royal Infirmary; and, being struck by the appearance, strength, and usefulness of the limbs operated upon, I determined, whenever a suitable case presented itself, to give the operation a trial.

History and Symptoms.

Operation.

Robert Strang, æt. 10, son of a collier residing in Clackmannan, has had strumous disease of the left knee joint for two years. The leg is slightly flexed, the joint very much enlarged, and an ulcerated opening, about half an inch in diameter, over the inside of the joint. A probe, introduced into this opening, and pushed backwards, enters the joint. He has continual pain, aggravated on motion, and the discharge is very considerable. The boy is pale and emaciated, and has a quick pulse, of about 120. Having stated to the parents that an effort should be made to save the leg, and explaining to them the nature of the operation for excision of the knee joint, they at once consented to have the operation performed without delay. I wrote to my friend, Dr James Gillespie of Edinburgh, requesting his assistance in this case, he having assisted the late Dr Richard Mackenzie in his previous cases at the Royal Infirmary; and, accordingly, on the 19th May 1854, I performed the operation as follows:—The boy being put under the influence of chloroform, I made a free incision across the front of the knee joint, below the patella, from a little above the posterior edge of the inner tuberosity of the tibia, across to the posterior edge of the outer tuberosity; and having divided the lateral and crucial ligaments, I proceeded to separate the connection round the condyles of the femur, which being done, about three quarters of an inch of the condyles were sawn off. A slice of about one-third of an inch in thickness was then taken from the head of the tibia, and the cartilage was removed from the inner surface of the patella by means of a gouge. Four arteries required ligature. The ends of the bones were then placed in accurate apposition, and the wound was closed with seven sutures. A splint, covered with lint, was applied to the ham, and the whole secured with a bandage.

Progress.

It is needless to give a detailed account of this case; but, I may remark, that in seven months, complete anchylosis of the bones had taken place, and the boy could walk with freedom. There were two or three sores in the neighbourhood of the incision; but they were superficial and unconnected with the bone.

History.

Urgency of the Symptoms.

Operation.

SECOND CASE.—The progress and cure of the case just related was anxiously watched by a gentleman in Alloa, whose son, eleven years of age, was labouring under acute synovitis and ulceration of the cartilages of the right knee. From seeing the case of the boy Strang progress so favourably, he asked me if a similar operation might not save his son's limb; and on being told that the case was a remarkably favourable one for the operation, he at once consented to have it done. I may state there was urgent necessity for this operation, or amputation being immediately performed. The extreme paroxysms of pain which came on whenever the boy attempted to sleep, caused by the ulceration of the cartilage being brought in contact with the opposing bone during sleep, when the natural control of the limb was lost, and his state of nervous debility, showed that he could not have borne up longer under the source of irritation. There was no other external ulceration, except a sinuous opening in the ham, which discharged a quantity of matter. I was assisted again by my friend, Dr James Gillespie, and the operation was performed on the 12th January 1855, in every way similar to the former case.

Abscess in Thigh.

There was a considerable quantity of pus in the joint, and distinct ulceration of the cartilage on the condyles of the femur and head of the tibia. The incision, nearly all healed by the first intention, and every thing went on favourably till about the beginning of March, when an abscess begun to form on the outside of the thigh, a little above the seat of the operation. This I opened on the 28th of March, and shortly afterwards the abscess gradually closed, and finally healed altogether. It is now eleven months since the operation was perform-

Condition of Limb.

ed, and the limb is fairly anchylosed. All swelling has disappeared, and the limb is as straight as its fellow, and only an inch shorter. The patella is found slightly moveable, a little above its former seat, and he can walk with a firm decided step, without a crutch, although he uses one at present, by my orders, to save the limb.

I may mention here the great benefit I found from the use of sand bags, recommended me by Dr Richard Mackenzie, laid on each side of the leg, along the sides of the joint, and fastened with two bits of tape, one above and another below the knee. They served admirably to keep the bones in accurate apposition, and, from their weight, kept the leg *in situ*, especially preventing its movement during sleep.

Alloa, January 1856.

XVIII.—*Case of Sudden Death from fatty degeneration of the Heart.* By Dr Paxton of Kilmarnock.

A. C., æt. 62, unmarried, of eccentric and penurious habits, who occupied a couple of rooms by herself, was found dead in her bed on the evening of Sunday, the 23d of December 1855.

Position when found.

She was lying in an easy position on the left side, with her head on the pillow, the knees slightly drawn up, the hands crossed (but not clasped) on the chest; the bed clothes not in the slightest degree disturbed; the body was quite cold and rigid, so that she must have been dead for some hours. She had been seen out of doors, and down the stair which led to her rooms, on the afternoon of the previous day, and a person passing in the street had seen her moving about and carrying a light between ten and eleven o'clock at night. She had gone deliberately to bed, everything being put past in its place, and her clothes properly arranged on a chair.

Post-mortem Examination.

The body was found spare, but not emaciated; she was very grey and looked older than her years. The brain presented a healthy appearance, there was no extravasation of blood, nor any remains of former lesion of that kind. The lungs were healthy, and free even from adhesions, the abdominal viscera were all in a natural and healthy condition. The heart was found enlarged, its cavities were dilated and filled partly with dark blood, partly with decolorized clots. The walls of the right ventricle were very thin and friable, the walls of the left ventricle were not relatively so thin, but were also very easily lacerated, all the muscular structure being of a pale yellow colour. The aorta was dilated, and some atheromatous deposits, were observed near its origin. The valves themselves appeared healthy, but from the dilatation of the cavities and aorta, hardly competent. There was no blood in the pericardium, nor any more than the normal amount of fluid.

This case of death from fatty degeneration of the heart, is only remarkable from the extreme suddenness and apparent easiness of the death, and the little warning given beforehand. The patient was never known to complain of heart disease, and indeed, hardly ever had been ill; she was regular and temperate in her habits, probably lived very sparingly, and although she had plenty of clothing, was generally scantily and badly clad, she also took little exercise. She had been seen late at night moving about, had evidently gone quietly and deliberately to bed, and seems to have never awaked out of her sleep, at least she never had made the slightest movement to disturb the clothes, etc., about her, nor even to lift her hands out of the natural and placid position in which they had been placed.

On examining portions of the right and left ventricles with the microscope, the transverse striæ of the muscular fibre had very much disappeared as compared with healthy muscle, and the fibres seemed in a great measure to have degenerated into fatty granules.

XIX.—*Case of Tic Doloureux cured by the Excision of a Mass of Phosphate of Lime, adhering to the Supra-orbital Nerve.* By HUGH SHARP, A.M., M.R.C.S. of England.

Treatment by Croton Oil, etc.

Detection of Small Tumour.

Excision.

On the 17th of December 1855, a man, G. F., æt. about 50 years, residing in Cullen, had a very severe attack of tic-doloureux in his left brow, which continued, without intermission, for several hours; it again returned on 18th, at the same hour as on 17th, but with greater violence, when I was called on for advice, etc. Seeing at once the nature of the case, and without examining minutely the seat of the severe pain, I prescribed for him some croton oil and calomel pills, to be taken at proper intervals. This had the desired effect, until the 20th, when the pain returned with the same violence as formerly, when I was again called in, when, on pointing out to the man the course of the supra-orbital nerve, which would have to be divided, or rather a small part of it removed altogether, in order to give relief, even for a limited time, I detected a small hard tumour, about the bulk of a pea, somewhat flattened, firmly adhering to, and immediately over, the supra-orbital nerve, as it emerged from the notch, and concealed by the eyebrow. I inquired if he knew how long the small tumour had been there, when he stated it had been there about thirty years, but had never felt any pain in it, or near it, and did not think it had any connection whatever with the pain; but on my stating my firm belief that the small tumour was the sole cause of the acute suffering, he agreed to my proposal of removing it immediately, which I proceeded to do. I thought the small tumour was a firm encysted one, but soon found out my mistake, for, on attempting to transfix it, my small bistoury was stopped. I then laid open the skin over the tumour, and grasped it firmly in a common dressing forceps, but found I could not dislodge it from its adhesions without the aid of a small scoop. This small tumour was in reality a small piece of phosphate of lime, which I transmitted to Professor Syme, along with the details of the case.

Result.

I have further to add, that the Tic was completely cured by the removal of the tumour, and has not again returned, even in the most modified degree, to the very great satisfaction of the patient. In many cases, I am of opinion that tic is produced by the presence of a tumour, of one kind or other, on the nerve, though situated so deep as to elude detection. I may here add, that the patient has suffered, every week almost during the past thirty years, from severe headaches, but since the removal of the little tumour he has had no return of headache whatever.

CULLEN, January 28, 1856.

XX.—*Case of Poisoning with Croton Oil.* By A. MERCER ADAM, M.D., Physician to the Dumfries and Galloway Royal Infirmary.

John Allan, labourer, æt. 49, was admitted into the medical wards of the Dumfries Infirmary on the 18th June 1855, suffering from chronic laryngitis.

History. The principal treatment which was adopted in his case, consisted in continuous counter-irritation of the laryngeal region, by means of blisters, tartar emetic ointments, and latterly by croton oil liniments; "swabbing" the fauces and glottis by means of a sponge probing, saturated with a solution of nitrate of silver (ʒss. to the ℥j.) every alternate day; and simultaneously administering iodide of potassium internally, in three grain doses, dissolved in infusion of quassia. Powdered nitrate of silver was also applied to the affected mucous membrane, by means of inhalations, on the method recommended by Dr Ebert of Berlin. This plan consists in placing one or two grains of the salt, reduced to very fine powder, and mixed with a little pulverised sugar, within a quill, open at both ends; the quill is placed on the root of the tongue, the lips are closed round it, and the patient is directed to inhale the powder by means of a forcible inspiration. I may here state, *en parenthese*, that I have found this a very agreeable and efficacious method of applying the nitrate to the laryngeal mucous membrane in cases of relaxation, thickening, and chronic inflammation generally. Under the influence of these varied modes of treatment, the patient continued gradually to improve, until the occurrence of the accident which I am about to describe.

On the morning of the 11th August, about half-past seven o'clock, Allan got up, and after rubbing his throat with a little of his croton oil embrocation, swallowed the rest of the liniment, imagining it to be his iodide of potassium mixture.

The following was the composition of the liniment:—

℞ Ol. Tiglii,
Ol. Terebinth, ā ā ʒj.
Ol. Camphoratæ, ʒij.
M.
Fiat Linimentum.

The quantity of this liniment which he swallowed was about three drachms and a-half.

Symptoms. He became aware of his mistake immediately after he had committed it; and, in a few minutes thereafter, he experienced a violent burning sensation, extending from the fauces to the stomach, and had also violent epigastric pain. He did not cough, but he had a spasmodic suffocative feeling, and convulsively gasped for breath for several minutes. At first he felt strongly inclined to vomit, but was quite unable to do so. He then began to be alarmed, and (ten minutes or so after having swallowed the liniment) he went to the nurse's room, and informed her of what had occurred. While she went to convey the intelligence to the house-surgeon, Allan repaired to the water-closet, where he was immediately attacked with violent purging, and severe vomiting. Mr Clement (our late most intelligent and assiduous house-surgeon) was in attendance without loss of time;
Treatment. and on learning the circumstances of the case, he instantly gave the patient 25 grains of sulphate of zinc as an emetic, and followed up its administration by giving copious draughts of tepid water. The emetic acted well, and enabled the patient to vomit more freely, and with greater ease. Vomiting was kept up for nearly an hour, by means of tickling the fauces with a feather, drinking tepid water, etc. At the end of this time, Allan was observed to become faint; the surface became cold and pale; and the face and lips assumed a livid tint. The pulse became small, and almost imperceptible; and the patient was unable any longer to maintain

the semi-erect posture. He was removed to bed without delay; heat was applied to the feet, and warmth and frictions to the whole surface of the body. Mr Clement also judiciously administered 25 drops of Tinct. Opii, suspended in a little mucilage, which gave him immediate relief.

Result.

I arrived at the hospital, and saw the patient at about half-past nine o'clock. The remedial measures which I have described had produced very beneficial effects; the local pain and general distress were much decreased; the vomiting was arrested; and the surface of the body was gradually regaining warmth. A large sinapism was then applied to the whole abdomen; an additional dose of ʒss. of Tinct. Opii. was administered; and bland mucilaginous diluents were ordered to be drunk occasionally, to relieve thirst, and allay local irritation. Shortly after the second opiate had been given, the purging ceased; the patient fell into a sound sleep, which lasted several hours, and from which he awoke very greatly relieved.

Progress.

Vespere.—The patient experienced considerable pain in the abdomen, which was slightly aggravated by pressure. The greatest amount of tenderness, on pressure, was felt in the epigastrium, and along the track of the colon. He complained of a feeling of rawness in the fauces, and along the course of the œsophagus. Pulse 90, soft and full.

Six leeches were ordered to be applied to the abdomen, on those parts which were tender on pressure; and an enema, containing ʒv of Ol. Ricini, and ʒj Tinct. Opii., was administered. Farinaceous diet was allowed in very small quantities, and the mucilaginous diluents were ordered to be continued during the night.

August 12.—The abdominal tenderness was much diminished, but the œsophageal "rawness" still existed, although in a somewhat modified form. The tongue and fauces were swollen and vesicated. There was no vomiting or purging. The enema had given him great ease. He was ordered to continue the farinaceous food, and mucilaginous drinks.

August 13.—Patient felt greatly better.

August 14.—Patient was convalescing rapidly. The mucous membrane of the tongue and fauces was coming away in shreds to-day; and the uneasiness of the gullet was lessening every day.

Cure. *August* 16.—Patient was quite recovered, but felt rather weak.

Remarks.

I have recorded the case, because, so far as I am aware, in no instance on record has a larger quantity of the oil been swallowed, in one dose, without the occurrence of a fatal result. This patient must have swallowed about fifty drops, perhaps more, of the oil—which had been recently purchased, and was of the best quality, and of undoubted efficacy.

Christison,[1] Pereira,[2] and other authors on Pharmacy and Toxicology, quote a case, from a French Journal,[3] which occurred in a Parisian hospital in 1839, which was in some respects analogous to the one which I have related. A man, æt. 25, accidentally swallowed a liniment containing two and a half drachms of croton oil. Alarming symptoms immediately occurred, resembling those of Allan; the whole surface became cold and cyanotic; the respiration was laboured, the circulation faltered; the patient rapidly sank, and died, with some symptoms of asphyxia.

[1] *Treatise on Poisons*, 4th Edition, p. 593.

[2] *Materia Medica*, vol. ii., p. 1276.

[3] *Journal de Clinic Médicale*, 1839, 509.

As regards the treatment of such cases, free vomiting, followed by the administration of opiates and diluents, with the application of warmth to the surface, and of sinapisms to the abdomen, legs, etc., seem the therapeutical measures which afford most relief, and are most likely to rally the sinking powers of life.

In Allan's case—as in all those which I have seen recorded—the great depression of the circulation was most alarming, and seemed not to be accounted for *solely* by the hypercatharsis and vomiting which had preceded it. May not the oil have a special depressant action on the vascular system? And if so, may not its peculiar applicability to certain diseases in which, in addition to a derivant action by catharsis, we wish to lower the force of the circulation, depend in some measure upon this property?

Part Second.

REVIEWS.

Letters to a Young Physician just entering upon Practice. By James Jackson, M.D., LL.D., Professor Emeritus of the Theory and Practice of Physic in the University at Cambridge; late Physician in the Massachusetts General Hospital; Honorary Member of the Medico-Chirurgical Society of London; Corresponding Member of the Academy of Medicine at Paris, etc., etc., etc. Boston, 1855. Pp. 344.

Dr Jackson has done good service to his profession by this book. We know not who is the "young physician" for whose advantage it was written in the first instance, but, we think him very happy in having been the means of calling out a work so well suited to its purpose, from one whose age and station place him above every other temptation to book-making, except that which arises from the most high and honourable feelings. In all well-regulated and active minds, there is something which leads them to wish to live in the future through their influence upon others. This instinct seems closely connected with those higher spiritual aspirations, which mark out man as destined for something greater and more perfect than he can achieve during his little span of mortal life; but it has also its purpose in the economy of society. "Even here, upon this bank and shoal of time," we would fain realise something of that immortality for which we look beyond. We live in the past as well as the present, and carry prophetic glances of hope into the far future. We joyfully bear the torch, which we have received from our fathers, trusting that we shall be able to hand it down, clearly burning, to the good time coming. Thus history becomes the record of high and noble deeds, which flash across the dark and sanguinary struggles of empires, like light breaking in upon chaos; and man is a progressive creature, helpful and generous, looking before and after, living, not in himself and for himself, not even for his own age, but for all time.

It is peculiarly the lot and the privilege of those who have passed through the ordeal of life unscathed, who retain youthful hearts in a green old age, to indulge these aspirations in their purest form. The accumulated experience, the mature thought, the sound judgment, the enlarged charity of such a character never fail to make it interesting to the young; and the sympathies which spring up under these circumstances, between those who have spent life, and those who have it yet before them, are among the purest and the least alloyed of the pleasures which it is given to us to enjoy. No selfish feeling mingles with the benevolence of the elder; no unruly passion disturbs the affectionate regard of the younger. They have enough in common to understand each other, not enough to be uninteresting to each other. Where they differ, it is to their mutual profit. The elder man is inspired and warmed by the fire of the younger; the younger is subdued and chastened by reverence for the elder. And, let us hope, that in this disinterested relation, they both learn a higher and holier lesson; that faith is quickened and strengthened by love; and that from the brother, whom he has seen, each of them learns to love God, whom he has not seen.

Such feelings demand expression—expression in words—expression in deeds. In the elder man who has seen and noted much, who has run the round of thought and personal experience, as well as of observation, the natural expression of his relation to the younger is in teaching; teaching not only of science, but of art; not only of facts and inferences, but of habits and modes of action. Such teaching is no slavish drudgery, no common gift, to be paid by a common fee. It is, on the contrary, spontaneous and irrepressible; calling into action all the faculties of the man. It is, moreover, only to be fitly rewarded by the diligent regard and service of a life. Who does not remember with some shame for our degenerate days, the recognition of such a relation in the Hippocratic oath? "I swear by Apollo the physician, that according to my ability and judgment, I will keep this oath; to reckon him who taught me this art dear to me as a father, to share my substance with him, to relieve all his wants, to look upon his children as my brethren, and to teach them this art if they shall wish to learn it, without fee or reward."

It is seldom that the teaching faculty under these circumstances, develops itself in a literary form. The truth is, that a book does not afford a sufficiently fine and subtle medium for the esoteric teaching of one who throws his whole soul, and the fruits of his whole life, into the task. Moreover, the continued labour of the pen and of the brain is distasteful to those who have passed life's meridian. But when that rare phenomenon appears, the book of a thorough teacher, a teacher of the heart and life, as well as of the memory and intellect, how does it stand out from the crowd of manuals, "lectures," and vade-mecums with which the press overflows! What simplicity of structure! what variety of detail! what contempt for trifles! yet what conscientious care for small matters, which are no trifles! What a genial human element running through the whole! Such a book, we think, is the one now presented to us by Dr Jackson.

It is a book more eminent for the manner than even for the matter, though the matter too, is of a rare, and indeed, invaluable kind. That it is not written for the display of knowledge, or from any purpose of personal ambition, is to be gathered from every page; as much from what it does not say, as from what it does. It is not a learned book, it is not even a complete book, going over the whole of its subject, according to the lights of modern science. Indeed, of science as divorced from, or not directly subservient to practice, it takes little count; and in relation to practice, the preference for what is clearly established and easy of application, over what is merely difficult and doubtful, is apparent throughout. Yet in thus saying "common things" in a common way, the author most effectually and unostentatiously convinces us, that he is no common teacher. He places us always right abreast of the real difficulties, which the young physician has to encounter in practice; and he never slurs over those small matters which are so perplexing at the bedside, to encounter what might appear at first sight matters of graver import. Dr Jackson knows well, and evidently feels, though he does not in words express, the faults of most of our modern books. Either they treat the great art of medicine as a voltigeur uses the tight rope; or they make of it a level platform on which the author, and the reader too, lose themselves amid a crowd of authorities, and a multitude of tedious and inconclusive details. In the one case, the successful execution of a stupendously minute diagnosis, or the balancing over difficulties which may possibly occur once or twice in a lifetime, and even then are of no great consequence, are allowed to monopolise the attention, and wear out the patience of the reader, to the neglect of many other things which he fain would know; in the other case, the individuality of the author is lost, and is exchanged for a factitious completeness, which is practically of no use, because neither gods nor men can endure the iteration of common places handed down from one author to another without inquiry, and without intelligence. If every medical writer would make it a duty of the first magnitude to winnow the mass of so-called facts, which make the staple of modern medicine, we should have fewer books indeed, but also fewer blunders. As it is, the labour of conscientious writing is to a great extent unappreciated by the medical public. Honest and able men who have much to say, and who could say it well, shrink from entering an arena in which they are not unlikely to be overwhelmed and set aside by the easy and comfortable dulness of copious compilers. Reviewers, who ought in the interest of the public to prove all things, and hold fast that which is good, are content if they perform the first part of this duty. Indeed, some of the organs of public opinion seem to make a principle of reducing all things to a level; and if we, in the exercise of our duty, neglect a worthless compilation, or hold up a malefactor *in terrorem*, we are pretty sure to see the name of the work and the author in a few days in the *Times*, backed by the most unquestionable certificates of character from half a dozen of our contemporaries.

To return to Dr Jackson. We do not intend to quote or to criticise the book he has given us here in detail. The first course is forbidden by our space; the second by our sense of what is due to the author. The work is one to profit by, and not to talk about. There are whole chapters in it which we would willingly transfer to our pages. Of this kind are the articles on Somnambulism, on Weaning, on Phthisis and Hæmoptysis, on the management of the diet in Dyspepsia and in Constipation. No one, young or old, can read these articles without recognising the hand of a master. No one can fail to be interested in them, or to derive from them materials for thought and hints for practice. To the "young physician," to whom they are especially addressed, we shall scarcely require to recommend them. So careful is the author to keep him in view throughout, to anticipate his difficulties, to forestall his prejudices, to engage his attention and his confidence, that we shall be greatly surprised if this work do not speedily become a favourite. To those who believe themselves to have got beyond elementary studies, we shall only say, that they are far advanced indeed if they cannot draw both pleasure and instruction from this book. They will find, no doubt, opinions from which they differ; but they will find them so stated, as to invite reflection rather than controversy. They will discover many omissions of things which they know, and consider to be of importance. But the most arrogant and omniscient of critics must surely be disarmed by the frank and noble simplicity of such an avowal as the following:—

> "In some respects I should call on you for instruction, rather than offer instruction to you. For instance, knowing how you have applied yourself, I should regard you as an authority in microscopic anatomy, or on nice points of organic chemistry. But I have been working, in my fashion, for more than half a century. I have been travelling through the country upon which you are entering. Its high-roads and its by-paths are somewhat familiar to me. You have studied them in the books and on the maps, and I doubt not you have studied them well. Yet I may be able to communicate to you some useful knowledge respecting them, although it relates to small matters only. However, that I may not seem to disparage myself, I will acknowledge a hope that there may be some few points of real importance on which I can enlighten you." P. 8.

Of the spirit which pervades this book, we can convey no better idea than by a few paragraphs from the introductory chapter. The author has been discussing the origin of the expression "liberal," as applied to the profession and art of medicine:—

"I have been led into these remarks because I think that some members of our profession have called it liberal, with false notions on the subject. They have thought not only that they differed from artizans, but they have seemed almost to believe that they were not practising an art. They have seemed to regard themselves as professors of a science, by which they could explain all the causes of diseases, and the true modes of treating them. I rejoice to say that, in some instances, this is true; and it is among the most delightful parts of our business, when we can instruct an enlightened man in the principles which should guide him in the attainment of health. It is not often, however, that we can have this pleasure, for two reasons,—First, because many principles, on which we act, are not established on certain ground; and therefore they must be followed with great caution and constant watchfulness. Second, because there are few principles which are universal in their application. In its application, every principle is subject to the limitation of other principles. We are not, then, acting on so grand a scale, always guided by well-settled principles of science; we are often glad of the most limited empirical knowledge, and often obliged to choose our course under much doubt. These difficulties are great; but they are not greater than those attending the application of principles to practice in many common affairs of life, where the circumstances are complicated. There is a marked resemblance, in certain fundamental points, between our art and the arts of agriculture and navigation. In the practice of each of these arts we avail ourselves of the laws of nature to produce certain results. The seaman places his machine—his ship—upon the waters, and avails himself of the winds to propel it. These winds are uncertain; they are not, in any way, subject to his control, so that he cannot be sure as to the duration, the comfort, or even the safety of his voyage. He cannot furnish a pupil with positive rules, by which to conduct his bark across the Atlantic. The captain must have first a knowledge of the principles of navigation; but this is not enough. In applying them, he must have regard to the qualities of his ship, to the strength of his crew, and to the constantly varying circumstances of the weather. The complexity here is much less than that attending the treatment of a disease; for in this we have to do with a living being. It is not strange, then, that the physician cannot always foretell the length or the amount of suffering of a disease, or the ultimate issue of it. All this is consistent with the wisest management on the part of the navigator, or that of the physician. It is much the same with the agriculturist. He may prepare his ground with the most appropriate manures, and give to it the nicest tilth; he may sow his seed at the proper season; and yet his expectations as to the harvest may be entirely disappointed. Not only may the weather be unpropitious, but, at the moment when the skies and the winds are favourable, and when success seems certain, some insect army may suddenly invade his fields and destroy his crop. Thus there is an uncertainty in dealing with the powers of nature which are most constant; for there is a good degree of constancy in the results of agriculture—so much that we are rarely disappointed in relying on it for the sustenance of man and beast. Yet, from year to year, there is a variation in its results; and, sometimes, the crops fail, in particular regions, almost entirely. Is it, then, surprising that there is much uncertainty in the success of the medical art, an art which has to do with a diseased body, and whose end is to bring back this body to the healthy functions which belong to it? More especially, can this uncertainty be surprising, when this diseased body has been previously damaged, or enfeebled by a long course of errors or misfortunes? While, then, we acknowledge the imperfection of our art, we must deny that this is a proper subject of reproach. It is so, indeed, as applied to those who profess to have a system, by which they can explain everything and effect everything you may desire. But it certainly is not so, when applied to those who pursue an expectant, or an active treatment, as circumstances may make proper; and who exercise modesty and discretion, as well as decision in the practice of their art." Pp. 10-13.

"It is my own practice to avoid drugs as much as possible; and I more frequently find it difficult to persuade people to abstain from using them, than to induce them to take them. But I hope that you will not believe me to be distrustful of the power of drugs to do real service to the sick, under proper circumstances. I am far otherwise. And, in reference to this point, I wish to tell you that your success in the use of medicines may depend somewhat on the temper with which you give them. You must be hopeful and feel an interest in them. Do not, like a cold step-father, leave them to make their own way in the world, but watch them in their course. You cannot make a fire burn well, if you put the wood on the andirons with a feeling of indifference. You must study to know the power of the drug you prescribe, the proper dose, and the tests of a sufficient dose, the mode of preparation of the medicine, and then of the patient for the medicine, and all the management requisite for a good result. Do not be in a hurry to give credit to your prescription, as soon as the patient shows any sign of amendment, nor be discouraged if relief do not follow as soon as you had anticipated. In this last case, see if there has not been some error in the management of the affair, or if some counteracting cause has not interfered. Do not despair because the medicine has failed on your first trial of it. Try it again, before you condemn what has been recommended as beneficial by one well qualified to form a judgment on it. I have wandered from my point." Pp. 14, 15.

"Let it be remembered—and we may address this particularly to the scoffer—that the true physician takes care of his patient without claiming to control the disease in all cases. He does not regard himself as making an exhibition before a company to show his skill; he makes no boast of what he can do. I wish I could say that this is never done by any of our profession. There are those who, directly or indirectly, trumpet forth their skill and their success, attributing the recovery of their patients to the remedies they have prescribed, and never to the spontaneous efforts of nature. These, whatever titles may be appended to their names, are true quacks. They *quack! quack!* that they may attract the attention of the passers-by; and, while they extol their remedies for the sick and the suffering, they are seeking only their own profit and their own glory. The true physician, on the other hand, cannot fail to be modest in his pretensions; for he is aware how his knowledge and power are limited, while he feels the magnitude of his task. Is it his business to cure all his patients? It is so, if he can do it, even in the sense now attached to the word *cure*. But, in the original sense of it, he should cure all; for, in that sense, to cure meant to take care. The priest had the parish for his cure, the physician the sick for his. In this sense, the sick were under his cure till they got well or died, if they were willing to remain so. The physician may do very much for the welfare of the sick, more than others can do, although he does not, even in the major part of cases, undertake to control and overcome the disease by art. It was with these views that I never reported any patients *cured* at our hospital. Those who recovered their health before they left the house were reported as *well*, not implying that they were made so by the active treatment they had received there. But it was to be understood that all patients received in that house were to be cured, that is, taken care of." Pp. 15, 16.

We think that our readers will recognise in these passages the ring of the true metal—the voice of one who both understands and loves his art. There is scarcely a page of the work, whether dealing with small details, or great principles, that is not instinct with the same spirit. We must, however, content ourselves with one more quotation. In the dedication to Dr John C. Warren, the author apologises for the egotism of the following narrative. Would that there were many more of us in a position to make a similar boast!

> "You and I began our active lives in this city nearly at the same time. It was when Boston had about one-sixth of its present population, and I suppose much less than a sixth of its present wealth. We were so circumstanced as to be peculiarly rivals. Our business led us across each other's paths every day for a long series of years. What one gained, the other seemed to lose. It would have been very easy for us to have got up a pretty quarrel at any moment; and having once begun, we might each have got partisans, and all the usual entanglements to such cases appertaining might have followed. Happily, we pursued a different course. We met together with the feelings we had had as fellow-students. We took much delight in consultation and discussion on professional subjects, and were ever ready to help each other. We have, indeed, maintained a strong personal interest in each other's welfare, and promoted each other's happiness. We do not resemble each other in temperament, and cannot see all things alike. From this cause, and not always looking at objects from the same point of view, we often differed in opinion. But we have always agreed to differ. We have not often disputed, and never have quarrelled on account of this difference of opinion, nor on any other account. In our intercourse with the sick, each has given the other credit for what was good in him, instead of studying and publishing the other's faults. In every work for the promotion of medical science, or for elevating the profession, we have co-operated heartily, neither of us trying to push the other aside. And thus it is, that being now, as regards age, in the front rank in our profession, we have continued to this day on terms of intimacy and friendship. This is something to rejoice in, and something for which we may properly thank God; and I know you will join me in giving thanks reverently.
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> "As we are near the end of our journey, I hope I may be excused for stating this experiment and its results. I would show to young men how grateful these results are. I can say to them that our interests have been promoted by our friendly treatment of each other; that each of us has gained by it much more than either of us could have done by the sharpest quarrels. If they believe me, any two of them, placed side by side, as we were, may be induced to try the plan of a peaceful competition." Pp. 2, 3.

Many of our readers will remember the history and fate of Dr James Jackson, junior, the friend and favourite pupil of Louis, a member of the Parisian Society of Observation, and author of at least one excellent and laborious paper in its Transactions. To the memory of that son, prematurely cut off, his father dedicated a biographical sketch, so manly, so unaffected, so touching in its simplicity, that we have never, since its perusal, ceased to feel as if both the father and the son had been our personal friends. The present work is one which, like the former, unconsciously portrays its author, not indeed in his domestic, but in his professional relations. Apart, therefore, altogether from its great merit as an exposition of some important parts of practical medicine, we recommend this book to our readers as the picture of a character in every way worthy of their attention—a physician, who, through more than fifty years of active medical practice, has carried with him into advanced age, in a city which is probably the first in intelligence in the American Union, the respectful sympathies of the old, and the unbounded reverence of the young. It is something to have done this without pretension, and without self-assertion; it is still better, to have stood clear from intrigue and faction during a long life; to have carried beneath a manly breast the heart of a child; and to have maintained undisturbed, during long years of professional rivalry, some of the confidential friendships formed in the early spring-time of life.

Surgical and Pathological Observations. By EDWIN CANTON, F.R.C.S., etc. etc. London. 1855.

THIS is a republication, in an extended form, of papers on various surgical and pathological subjects, which the author had formerly communicated at different times to the *Lancet* and *Medical Gazette*. All the papers contain interesting matter, but those which seem most elaborated, are the pathology of chronic rheumatic arthritis, shortening of the leg from bruise of the hip, and the employment of purgative medicines after the operation for hernia. The two former of these subjects were very fully discussed by Mr Smith of Dublin, in his work on fracture, who drew attention to the true nature of the progressive alterations in the different articular structures, and since then several detached notices on these subjects have appeared. As far as relates to the pathology, Mr Canton's paper seems, by minute and careful description, to exhaust all that is at present known on the subject, and the sketches which illustrate the description, are at once remarkable for their accuracy and beauty. Practically, however, we regret, that whilst so much care is deservedly bestowed on the pathology of the disease, nothing is said as to treatment. We cannot help recalling to the attention of some of our modern observers, that after all, pathological facts are but means to an end, and are just valuable in so far as they suggest, and lay more solid foundation for rational plans of treatment. The employment of purgatives, after the operation for strangulated hernia, is a subject which seems of late to have engaged the attention of some of our London brethren; but we think there is not much difference of opinion now-a-days as to the rule of practice. Few surgeons, who have had much experience in hernial operations, and opportunities of examining the conditions which lead to the fatal result in unfavourable cases, but must have arrived at the opinion that the use of purgatives immediately after the operation, would very often be likely to lead to mischief, and that the proper practice is to obtain a period of rest during which the portion of bowel which has been constricted, may recover from the irritation and congestion it has suffered, before it be again excited to action. Our own practice is almost invariably to exhibit a moderate opiate after the operation, and if the bowels are not moved spontaneously twenty-four hours afterwards, to give a simple enema followed by a dose of castor oil, or some other gentle aperient, should the enema fail to act. In some cases, of old persons, however, it will sometimes be found necessary after a time, to have recourse to more active purgatives, before relief is obtained, and hence the use of purgatives, if had recourse to, with proper circumspection and consideration of all the circumstances of the case, is not to be indiscriminately condemned.

It is true, that one very eminent surgeon, Mr Lawrence, in speaking of the general after treatment, advocates a system of purgation, much more active, than is in accordance with our views of treatment; but on the other hand, we think that the passage quoted from page 325 of Mr Lawrence's admirable treatise, will scarcely bear the construction which is sometimes given it, and which seems to disquiet Mr Canton. Mr Lawrence, in speaking generally of the after treatment of hernia, in cases where abdominal inflammation threatens or is present, says, active antiphlogistic treatment is necessary, and next goes on to say, what! That active purgation should be had recourse to? No such thing, merely this, The use of aperients is not to be neglected.

In conclusion, whilst we quite agree with those who advocate a period of rest after the operation, before exhibiting aperients, we think there exists so little difference of opinion amongst modern surgeons on this point, that it may safely be left without further discussion or comment.

Human Osteology. By Luther Holden, F.R.C.S., Demonstrator of Anatomy at St Bartholomew's Hospital. Illustrated by numerous drawings on Stone and Wood. London. 1855.

This work is profusely and beautifully illustrated, in a style peculiarly adapted for the student. The drawings are large, either half or full size; the names are marked on the parts themselves; and the muscular attachments are mapped out, in red and blue outline. The muscular attachments are thus at once made evident to the eye, giving an idea which description alone could not do. The views of the scapula, innominate and occipital bones struck us, among many others, as peculiarly illustrative of muscular relation. The relation of the muscles to the bones, and their influence on them, is a study which seems to us not to have attracted sufficient notice generally, and is one which the anatomical student is very apt to overlook. He looks to the outside of the muscles, and then is apt merely to commit to memory the origins and insertions, instead of following the muscles and tendons home to their precise points of implantation. Examined in this light, the bones assume a new interest; their modellings and secondary characters may now be understood. Take, for instance, the brachialis anticus muscle, now lying before us. Following this muscle down, it is seen to be attached not simply or properly to the coronoid process, but to have only a narrow implantation along the inner part of the front of the process, and into the tubercle below; while the outer two-thirds of the front of the process are unoccupied, except near the summit, by the anterior ligament. Now examine the macerated bone, and corresponding markings are seen.

The text of Mr Holden's work is well written, in a plain agreeable style, and we meet with many of those practical remarks which add the surgical interest to the anatomical. The account of the microscopical anatomy and development of bone, at the beginning, and of the unity of type in the vertebrate skeleton, at the end of the work, are also clearly written and well illustrated.

The preparation of this work must have been attended with great expense, and with no small labour to the author, if the muscular attachments given are the result of repeated personal investigation. We give it our most hearty approval, and recommend it to every student and anatomist. Mr Holden is already favourably known as the author of an excellent manual of dissection, and the present work, which he designs as supplementary to it, entitles him to rank still higher as an anatomist and surgeon.

Part Third.

MEDICAL NEWS.

THE MONTH.

Mr Headlam's Bill is running the gauntlet of the different medical boards. The Physicians' Colleges throughout the empire may generally be said to be favourable; while the Universities, Surgeons' Colleges, and Apothecaries' Companies are unquestionably adverse. We much fear that the time is not yet come for medical legislation, and that until the profession itself shall evince more unanimity, Parliament will not undertake the thankless task of deciding where doctors differ. Analogy in other departments of government induces us to believe that, Bill after Bill rejected, we shall drift on as we are, until the continued recurrence of anomalies shall extort constitutional remedy—it may be by piece-meal, but in time, we have no doubt that, under this pressure, a sound system of medical polity will be evolved, especially if present heats and jealousies are allowed to subside.

Before Palmer has had time to be tried, and with that gregarious thirst for blood which the history of crime often exhibits, we have two other cases of poisoning, one in England, and the other in Scotland. In the Leeds instance, no insurance seems to have been effected, and the murder has been perpetrated from the simple motive of hate. In the Shotts case, there has obviously been a complication of motives, but as our Scotch system does not admit of details being published before trial, the case cannot yet be minutely discussed. The multiplications of such tragedies points imperatively to some check on traffic in poisons. The buying of deadly substances for killing vermin is a device too transparent to be tolerated longer; and it surely would be no undue restriction on what is called the liberty of the subject, to statute and ordain that no poison, in a form suitable for exhibition to the human subject, should be purchasable without an express order from a legal authority.

We are glad to state that the Lord Advocate, with that public spirit with which his official career has been distinguished, has again brought forward his "Bill to make further provision for the Removal of Nuisances in Scotland." His Lordship will, we trust, acquit us of any tendency towards captious criticism if, while admitting the difficulties that surround this department of legislation, we submit for his consideration a few points where the measure may yet further be improved.

In Section IX. Nuisances are defined as— .

(b) Any Pool, Watercourse, Ditch, Gutter, Drain, Privy, Urinal, Cesspool, or Ashpit *so foul as to be injurious to health.*

(c) Any Animal *so kept as to be injurious to health.*

(d) Any Accumulation or Deposit within the Limits of any Burgh, or within Fifty Yards of any Dwelling House, *offensive or injurious to health.*

(e) Any Work, Manufactory, Trade, or Business *offensive or injurious to the health of the neighbourhood.*

It will be observed that the classes (b) and (c) are nuisances only "if injurious to health," while the others are so if "*offensive* or injurious." We would suggest that all the four should be placed in the same category, as we have found by experience that the authorities are sometimes not content with hypothetical averments as to unwholesomeness, but expect positive proofs that disease has really been engendered, a course not at all times practicable. We would suggest that the definition should be "injurious to health, unwholesome, or offensive," because the words employed, and their order in the Bill, do not sufficiently bring out "offensiveness" as an alternative element. It would also be desirable to put down nuisances not only in burghs and near dwelling-houses, but also in the vicinity of roads and thoroughfares, because if there be any truth in Dr Alison's theory that cholera and diarrhœa are propagated by exhalations from the excrement of patients labouring under such diseases, contagion will be communicated to all those who daily traverse localities where dejections lie in unchecked accumulation.

Section XVII. refers to watercourses, ditches, and drains along *public roads* —it would be an improvement to add "or *thoroughfares*," as for a long series of years, thimblers and like offenders plied their vocation with impunity, simply by carrying on their operations on *private* roads. It would also be desirable that all conduits of liquid matter from houses to main drains, should be covered. If the Lord Advocate has any doubts as to this, it would be well for him to see the filthy open ditches at Hillhousefield, in the close proximity of his own returning burgh.

Section LXV. provides for the proper repair of pavements and streets "within burghs;" but we need not state that the limits of burghs are arbitrary, and that we often come upon large and ill-conditioned suburban districts beyond the police bounds. Would it not be well to give power in the new Act to Parochial Boards to compel owners to keep the foot-paths, etc., opposite their premises, in proper repair? We are sorry that harbours, the monster grievance of Leith and all maritime towns, are not touched in this important measure. It does seem very like straining at gnats and swallowing camels, to pounce on the poor Newhaven fisherman's heap of oyster-shells, and mulct him in fines and penalties, while the Leith Dock Commissioners are twice a-day suffered to expose the lieges to the contamination of the combined filth of Edinburgh and Leith, by permitting at low water its execrable harbour-bed to pollute the air with pestilential odours. Surely the simple remedy of dock-gates might be introduced into a Bill of this kind; and after Aberdeen and Dundee have participated in a boon so important, it is about time that the legislature should bethink itself that the denizens congregated in the neighbourhood of the metropolitan port, have senses capable of being shocked, constitutions liable to be impaired, and lives susceptible of being cut short before their legitimate time.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXXV., 1855-56.

February 20*th* 1856.—David Maclagan, M.D., in the Chair.

I. POST-MORTEM APPEARANCES IN A CASE OF CHYLOUS URINE. BY DR PRIESTLEY.

Dr Priestley exhibited some of the viscera of a young patient whom he had attended conjointly with Professor Simpson, and who had been the subject of chylous urine for a considerable period. The patient, a boy aged twelve years, had passed the greater portion of his life in the Mauritius and Ceylon, where such a morbid condition of the renal secretion appears much more common than in this country. In 1855 he was sent to Scotland for his education, and shortly afterwards his health began to decline.

The case at this time brought before the notice of the Society was interesting chiefly because an opportunity had been afforded of noting the morbid appearances after death. Numerous instances of fatty urine were on record, and lately some interesting papers had appeared on the subject, but Dr P. was not aware that any record existed of the *post-morbid* lesions in such cases.

In this patient the disease had continued, with some slight intermissions, three or four years. The average quantity of urine passed was 36 or 40 oz. daily. When recently voided it had a milky appearance; but after standing some little time, it spontaneously coagulated, and had the appearance of blanc-mange. Later, it separated into two portions, the lower being a fibrinous coagulum, the upper a milky fluid, in which the fat was suspended in extremely minute particles. Often the intermediate stage did not occur, and the urine then, immediately after passing, separated into two portions. The spontaneous coagulation of the fibrin in the bladder had been a source of great and constant distress to the young sufferer. Large portions of coagulum had blocked up the canal of the urethra during the passing of urine, causing great pain; these he had learnt himself to extract by seizing them with a piece of paper, and carefully drawing them out, thus allowing the urine to escape.

The fat in the supernatant portion of the urine was too minutely divided to be detected as oil globules by the microscope, but was readily washed out with ether. The vibriones were very numerous, and had been detected, not only after the urine had been passed some time, but almost in equal number, when the fluid had been taken away by the catheter and examined immediately. Some days before death the urine had become clear, this being coincident with a rapid change for the worse, the patient apparently sinking by asthenia. At the *post-mortem* examination, both kidneys were found extensively diseased. The distinction between the cortical and tubular portions was lost, and the vascular net work, observed on the surface of the healthy organ, was obliterated. The microscope showed the whole structure to be fatty, as in some of the advanced forms of Bright's disease. The liver was loaded with fat, and the muscular fibres of the heart had lost their transverse striæ, and were replaced by oil globules. There was also tubercular disease present in the apex of one lung.

II. MEDULLARY CYSTIC TUMOUR OF THE FEMUR. BY JAMES SPENCE, ESQ.

Mr Spence exhibited a preparation of a tumour of the femur of a medullary cystic character, which had led to the occurrence of fracture of the bone. The preparation showed the importance, in such cases, when admitting of operation, of amputating beyond the continuity of the bone affected, as the specimen showed the commencement of medullary growths at different points of the shaft and towards the neck of the femur. There was also in this case distinct cancerous disease in the heart, a small tumour being found under the pericardium over the right auricle, and involving the muscular substance of the heart and commencement of the pulmonary artery.

III. SOLID BURSAL TUMOURS. BY JAMES SPENCE, ESQ.

Mr Spence also exhibited a very large solid bursal tumour which he had removed from over the right patella in a female, and a smaller one removed from over the opposite patella in the same patient.

IV. REPORT OF COMMITTEE APPOINTED AT LAST MEETING OF THE SOCIETY, ON DR BROWN'S CASE OF DISEASED OVARY. WITH A DRAWING OF THE PREPARATION. BY MR EDWARDS.

(*The following Report was read by Dr Priestley, upon Dr Brown's case, the details of which were given in last number of the Journal.*)

The left ovary is enlarged to about the size of a small fist, but retains the general outline of its form. When cut into, it presents the appearance of a mass of coagulated blood, subdivided by fibrous partitions into clots of different sizes. The clots are of different shades of colour. The differences in shade do not occur symmetrically. The clots have a definite form; between them and the fibrous envelopes there is no smooth lining membrane indicative of that envelope having been a cyst.

There are three dark-coloured clots, with definite boundaries, and near to where the rupture into the peritoneum took place, is a long irregular clot, which is softer and more friable than the others. More in the centre of the ovary, there are two larger clots, of a greyish bleached appearance, not circular, but pyriform, and between them a dark clot runs to coalesce with the larger of the three dark clots, mentioned previously. The clot, which is situated near to the seat of the rupture, passes between the wall of the ovary and the lowest grey clot, until it has been apparently stopped by the wall of another. It then turns inwards, between the obstructing septum and the lower grey clot.

The questions which arise are—1st. Was the formation originally cystic? 2d. At what time did the clots form? 3d. What gave rise to their formation? We adopt the following conclusions—1st. The disease commenced in the ovary, from which hæmorrhage seems to have taken place into the peritoneum. 2d. We think the disease to have been probably of the cystic type. The entire structure of cysts was not demonstrable; but the distinct circular areolæ, within which the blood was confined, and the remains of small cysts, not filled with blood at the margin of the tumour, appear to justify this view of their nature. 3d. The hæmorrhage may have taken place into the cyst at *one*, or at *several* periods, which may have coincided with the menstrual periods; but upon this point there is not sufficient evidence to satisfy all the members of the committee.

Wm. O. Priestley.
A. M. Edwards.
J. M. Duncan.
W. T. Gairdner.

In connection with this report, Dr Priestley showed to the Society a form of diseased ovary, which he thought might, in some measure, elucidate the appearances observed in Dr Brown's case. The preparation had been removed from a patient of Dr Alexander's by Dr Hughes. The ovary had apparently undergone the common cystic degeneration; some of the smaller cysts, containing the clear glairy fluid usually found, while several of the larger ones were filled with fluid blood. Dr P. suggested, that the blood in Dr Brown's case might originally have been fluid like this, and latterly become coagulated.

V. CASES OF AMPUTATION OF THE CERVIX UTERI. BY PROFESSOR SIMPSON.

Dr Simpson exhibited two preparations which he had lately removed from patients affected with cancer of the uterus. These cases, it is expected, will be made the subject of a paper in an early number of the Journal.

VI. REFLECTIONS ON THE RESULTS OF EXPERIENCE AS TO THE SYMPTOMS OF INTERNAL INFLAMMATION AND THE EFFECTS OF BLOODLETTING DURING THE LAST FORTY YEARS. BY PROFESSOR ALISON.

(*This paper, in the absence of, and at the request of the author, was read by the Secretary. It appeared in the March number of the Journal.*)

The *Chairman* remarked that the Society was greatly obliged to the author of this most excellent paper to which they had just listened. There was no one better entitled, by his superior judgment and range of experience, to speak with authority on the important question discussed in the paper, and in no place could his opinions be received with greater respect than by the present Society.

Professor Simpson moved that the best thanks of the Society should be sent to Dr Alison for his very valuable communication. Dr S. added, that before those that were more able to discuss the subject of the communication should enter upon that discussion, he would beg to make two remarks suggested to his mind on hearing Dr Alison's essay. Dr Alison had referred to the question whether or not it was possible for pneumonia and other inflammatory diseases, to undergo some change in type and severity at different times, and whether such a change might not explain the alteration which has taken place at different times in relation to the treatment of pneumonia and other inflammatory diseases,—at one period by bleeding and strict antiphlogistic measures, and at other periods, by an almost expectant method, or even by wine and typhoid treatment. Without entering into the question as to whether inflammatory diseases showed such cycles of changes in their nature and in their constitutional accompaniments, Dr S. alluded to the stronger proof which we possessed of varying types of severity and danger in diseases not liable to the same errors in diagnosis as pneumonia, viz., eruptive fevers. Professor Thomson's investigations, for instance, into the history of smallpox in former times, had led him to the conclusion, as he used to state in his lectures, that we had that disease varying to such a degree in different epidemics and cycles of time that occasionally it was a malady so fatal as to destroy one in every three or four attacked, and during other courses of years, its mortality in the same countries was diminished to only one in ten or twenty.

The most important question, however, referred to by Dr Alison was, as regards the beneficial effect of bleeding and other antiphlogistic means when adopted early and actively in the treatment of pneumonia. There was a body of evidence on this point to which Dr Alison had not referred, but which Dr S. could not but look upon as one of great value. He alluded to the results of the treatment of pneumonia in our army and navy, as indicated by the official government reports. When a soldier or sailor becomes the subject of pneumonia or any acute disease, he is, from the nature of the service, invalided at once, and placed immediately under appropriate treatment. We know, farther, that the general, or, indeed, universal plan of treatment pursued in reference to this disease by the medical officers of the army and navy, has been the employment of bleeding and other antiphlogistic measures. Out of some 15,000 cases of pneumonia given in the official army and navy returns, on an average only one in twenty-five to one in thirty of the patients attacked by this formidable type of inflammation had died; and, in some of the returns, the mortality from pneumonia did not, indeed, amount to more than one in forty, or one in fifty of those attacked. He believed that these same official returns would have shewn a very different mortality from the same disease if the patients attacked with pneumonia had been submitted to the chances of an opposite kind of treatment.

Dr Alexander Wood said he had not intended to take any part in this discussion, but as no one seemed willing to break the ice and take the initiative, he willingly came forward, were it only to express the extreme gratification with which all in the room must have listened to the admirable paper of Dr Alison. He did think it would have been better had some one, prepared to dispute the positions of that paper commenced the discussion, but he presumed, from the prevalent silence, that there was an unanimous agreement in its favour, but it was decidedly right that this substantial agreement should be generally known, to counteract, in some measure, the injurious influences which the crude and rash theories of Dr Bennett must necessarily exercise on the Edinburgh School of Medicine, in which he holds office as a teacher. It now appeared that no one individual in Edinburgh was prepared to support the views promulgated by Dr Bennett in his Introductory Lecture, and that their author shrank from undertaking their defence in a Society where he must contend with his equals. A teacher of medicine had a deep and a solemn responsibility. It is his office to direct the minds of the future practitioners of the country, and it is a serious reflection to consider the mighty evil which a single error may produce, when it emanates from a source of such influence and such authority as a Professor's chair. Surely that is not a wise place to initiate such sweeping novelties in practical medicine. Surely it would have been better to have had these views ventilated by the free discussion of practical physicians. Surely here, where he can meet his compeers, would have been a fitter place for Dr Bennett to have promulgated his views. Surely it argues a want of confidence in the truth of his opinion, akin to cowardice, for a man to teach such crude and undigested theories to his students, and yet to decline to defend them when impugned by an authority so distinguished as Dr Alison, and to avoid the discussion of them by those who are qualified by personal experience for the task.

One question presented in connection with this discussion was, that bloodletting is not now so much, or so frequently required, in the treatment of acute disease, as it used to be. He was not prepared to maintain the converse of this proposition, yet he was of opinion that in the way in which it had been presented, it was not sufficiently supported. He appealed to the experience of those engaged in practice, whether they had not met with many cases in which a more favourable issue might have been expected, had venesection been employed at an early stage. Was there a practitioner in this room who had not seen cases where diseases neglected at the commencement, or treated on the principles of modern dilettanteism, have left the patient with a carnified lung, or a dislocated heart, or the victim of a wasting empyema? Was there a practitioner in this room who had not repeatedly had under his care cases where the prevalent dread of venesection has influenced him against its use, contrary to his better judgment, and where, during weeks of tedious treatment, he had had leisure enough to regret, that he allowed the precious early hours of the disease to pass unimproved, when the lancet would have paved the way for after treatment, and determined a more complete and rapid cure.

He was well aware that blood-letting had often, like all other good remedies, been abused, and those who object to it have no difficulty in adducing cases in which it had been uselessly or injuriously employed. Medical men had no security against that tendency which humanity in general exhibited, to run in flocks, though they were not backward also in the exercise of that tendency to butting which some members of the flock were prone to indulge in. Over blood-letting was one cause of the present reaction, which perhaps was running a little too much in the opposite direction. Formerly venesection was almost the invariable rule; more lately, the leaders of the profession have gone against blood-letting, and the flock have followed. Dr W. referred to the distressing results produced by the routine employment of blood-letting in acute rheumatism in the French hospitals, on the plan of Bouillaud, and more lately our own experience in Edinburgh of the effects of blood-letting in fever, supplied by various statistical accounts in the *Edinburgh Medical Journal.* The excessive and injurious employment of venesection was an error, however, which was not now likely to be indulged in; the converse was more likely to be observed. He admitted that he seldom bled himself, but on that account he was all the more free to contend for the use of the lancet when circumstances demanded it.

Familiar examples of its efficacy must occur to every practitioner. For example, the efficacy of leeching in the formidable disease phlegmasia dolens, which often required no other treatment. The treatment of croup also was a striking illustration of the importance of early and decided blood-letting. In all cases which were not of a strongly marked, strumous character, venesection always produced good results. Practitioners often entertained fears of the effects of blood-letting in young subjects, and hesitated to employ it; but if the case was seen early, a large and free bleeding secured by opening the jugular vein (as Dr Wood generally did in this disease), and an emetic administered, there was in most cases nothing more needed to complete the cure. He remembered having seen, with Professor Simpson, many years ago, a case of very decided peritonitis, in which the disease was at once *knocked down* by *one* very large bleeding, followed by another smaller. Nothing more was needed to complete the cure. The argument which might be brought against those cases, that the patients might have done equally well without the bleeding, was worth nothing. They all combined to prove that in severe and well-marked inflammatory diseases, venesection effects a cure, and is attended with none of the evil consequences which, by some parties, are attributed to it.

Dr W. continued—the danger under which we now labour is not that of a recurrence to those sanguinary days when the course of the physician was marked by the unnecessary waste of that blood which is the life. A reaction has taken place, and we now seem likely to rush into an opposite extreme. It requires some courage now-a-days to use the lancet. Most men naturally shrink from the shedding of blood, and it takes a good deal of proof to convince any man that the case in hand really requires it. The patient, too, has an instinctive aversion to it, and the friends will do their utmost to hold back the undecided hand. Such are the influences against which the youthful and the timid practitioner has to contend in those cases which would undoubtedly be benefitted by a timely use of the lancet, as well as in that much larger class where it requires, especially in the early stage of the disease, a most careful weighing of all the indications, to determine whether blood-letting is necessary or likely to be beneficial. Is it to be wondered at if they too often turn the scale, and debar the patient from the advantage of this most useful remedy. Such being the case, what will be the inevitable consequence of proclaiming doctrines such as those held by Dr Bennett, from a professor's chair. They are listened to by lads who have seen no practice, and who therefore cannot contradict them from the results of their own experience. The distrust in this important remedy thus insinuated, becomes a preconceived idea, which is always difficult to eradicate, and the scepticism thus engendered is another element which weighs in the scale, and too often determines against the use of the lancet, or defers its employment to a time when its services are of more doubtful value. There are some reasons not hitherto adverted to, which may, in some degree, account for the less frequency of blood-letting. The use of antimonials, of ipecacuanha, of calomel and opium, and digitalis, is better understood, and their influence on the circulation more largely employed. Much, that it was formerly thought, blood-letting could alone accomplish, is now entrusted to their care. In the diseases of children, in particular, antimony will often accomplish all that blood-letting could be expected to produce, and thus effects, nearly similar, are realized by causes not identical. He might also refer to a paper[1] which he had read before this Society, early in the present Session, on the importance of the nervous element in inflammation, and its influence on treatment; in that paper he had endeavoured to show the importance of accurate observation of this point, in guiding as to the employment or avoidance of blood-letting. When the nervous element predominates over the vascular in inflammatory disease, as it frequently does, it is then that the accompanying fever assumes the typhoid character, and venesection, or other depletory measures are not borne, and our whole system of living was tending to exalt the nervous system, and probably thus to influence the type of all diseases.

He regarded the present paper, presented as it was by one of the most accurate observers, and one who could be perfectly trusted, as a complete refutation of the assertion to the exposure of which it was directed. That assertion he regarded as exceedingly rash, and, considering the place where it was uttered, as exceedingly improper. It comes, too, from one whose opportunities of observation extend over a much more limited period than those of the author of the excellent paper which had just been read, and from one whose experience, derived, as it evidently was, from the broken down inmates of hospitals, or the destitute applicants at dispensaries, was of the most fallacious character.

Dr Andrew Wood was of opinion that the reason why the discussion on this paper had seemed to flag, was not because of lack of interest in the subject, and certainly not because of want of ability in its treatment by its distinguished author, Dr Alison, but because there was a very general agreement, on the part of those present, with the views which he had so lucidly and vigorously stated in his essay. Where, he would ask, was the opponent of these views? why was he not here to contest them? Surely here, in presence of the profession, was the proper arena for the contest—the lists were prepared, and here was a champion ready to do battle with him—with whom it might be deemed a high honour to be permitted to break a lance. This was a question of practice and experience, and which ought to engage the attention of practitioners. It involved an issue no less than a complete revolution in practice, the abandonment of a method of treatment which had received the sanction of many centuries, and came recommended by having been adopted by the wisest, most virtuous, discreetest, best, of the profession in all ages. They were asked to ignore the facts and experience of past ages, in obedience to the dictates of a theory which, however dogmatically stated, still remained to be proved to be true. He could only regard it as a rash and unwarrantable proceeding, thus at once to throw to the winds the valuable results which had been accumulating ever since medicine could claim to be a science and an art. In the desire to advance new views, it was not an uncommon thing for men to shut their eyes to what had been done before their time. Thus, it was denied by Dr Bennett that there was any importance to be attached to the idea, that bleeding was less practised in inflammatory attacks at present, because the type of disease was different from what it had been in the recollection of even young members of the profession. But the variations in the character of epidemics—

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[1] *Edinburgh Medical Journal*, January 1856.

variations in the type of diseases—was no new doctrine. These had attracted the attention of the most distinguished writers on medicine, in times long gone by. We know for a certainty, for example, in regard to scarlatina, that the epidemics of that disease vary infinitely in character, some of them being so violent that medicine seems to have little effect in controlling them ; others so mild that they require little treatment of any kind ; and so with small-pox, fever, and other diseases. It is a well established fact, that the weather follows certain cycles of revolution, and it was not unreasonable to suppose that this might exert a considerable influence on the character of the diseases prevailing during the existence of these cycles, so as to cause them to present varying types, requiring varied treatment. He (Dr W.) had now been in practice twenty-five years, and he could very well remember, that when he first commenced the practice of his profession, there were very many more cases to be met with of pure inflammation, attended by the symptoms of synocha, as described by Cullen, which not only admitted of, but required for their successful treatment, depletion, carried to an extent which would alarm those who had only seen disease in recent years. And this treatment was most successful—followed by rapid relief of the symptoms, and by a favourable and not prolonged convalescence. He was not there to deny that bleeding, injudiciously had recourse to in cases unfitted for it, or used to excess, might not have done harm, but of this he was certain, that in many cases much evil had resulted from the timid use of the lancet, or from its having been omitted to be used. In croup, for example, when that disease assumed a dangerous form, what remedy could supply the place of early and decided venesection? He himself, very early in his practice, had lost a case of croup, in which he had trusted to leeches and antimony, but which, he believed, might perchance have been saved by general blood-letting ; and ever since then he had never scrupled, in severe cases of croup, to have recourse to venesection, with the result of an amount of success which, under less active treatment, he truly believed would not have been attained. At the time to which he was alluding, far more than at present, there were frequently occurring cases of acute sthenic pneumonia, such as Dr Gregory used to describe as "*refreshing cases*," where the practitioner had no doubt as to the line of treatment he should adopt, namely, active depletion, and where the effects were as marked and rapid as they were successful. Such cases were comparatively rare of late years, but the time might come, and probably would come, when they would become more common; and then how fatal would be the result if, misled by a false generalization drawn from insufficient premises, medical men should be tempted to omit those measures which, from the earliest periods of our art, had been had recourse to with signal success. Though cell-growth was neither known nor understood in the olden time, still cells were formed then as they are now, and exudations poured out then as they are now ; and yet depletion was practised, not only without injury (when properly used, for of course that must be understood), but with the effect of producing a cure—probably a more complete cure than if a more expectant system had been adopted, by obviating those deleterious organic alterations which inflammation, unchecked, is known to occasion. Dr Wood said, he himself, like the distinguished author of the paper, could speak from personal experience of the good effects of blood-letting. A good many years ago, he had been affected with inflammation of the larynx, and the suffering he endured from the consequent dyspnœa, was beyond description intense. His medical attendant, in the first instance, declined to use venesection, believing that milder measures would be effectual ; but in a few hours his sufferings increased, so that he felt as if a tight cord were tied round his neck, and an urgent sense of impending suffocation. He should never forget the relief which he obtained when the second cupful of blood was flowing. It seemed as if the cord was cut in two—he breathed freely, he was a new man. Was he to be told that, for fear of interference with cell-growth and exudation, blood-letting should have been withheld? On the contrary, he believed that the use of the lancet had saved his life, as most unquestionably it had relieved his sufferings.

Dr W. would mention another instance of disease, in which he regarded the use of blood-letting as almost, if not entirely, indispensable—he alluded to those urgent inflammatory symptoms which not unfrequently attended the albuminuria consequent upon scarlet fever. These symptoms, indicative of inflammatory action within the head, chest, or abdomen, were frequently found at once to abate on the employment of venesection, and other antiphlogistic treatment—to withhold which in such cases he regarded as dangerous practice. There could be no doubt that, in the present day, there was a very general aversion on the part of the profession to the employment of blood-letting—and, to a great extent, this feeling was rational and proper, and might, as had already been shown, be accounted for by a change in the type of disease, by the prevalence for the present, of a typhoid rather than of an inflammatory type. Medical men, as had already been remarked, were gregarious animals, and very apt to follow the lead of their fellows; and it is possible that evil might result by too indiscriminate an abandonment of a practice (which, however liable to abuse in ignorant and injudicious hands) was in the hands of men fitted by their knowledge and judgment to wield it, not only valuable, but in many cases indispensable; at least, such was Dr W.'s opinion. It could not be denied that, in the public mind now-a-days, there was a strong prejudice against blood-letting—a prejudice fostered by the fallacies of quacks of various denominations; but medical men should beware how they made unworthy concessions to popular opinion. The well-educated practitioner of the present day deserved the confidence of the public, whether he possessed it or not; and he was fitted and entitled to direct public opinion, not to be directed by it.

"Justum et tenacem propositi virum
Non ardor civium prava jubentium
Mente quatet solidâ."

In conclusion, Dr W. said, that it was of importance that this Society should give forth no uncertain sound on this important question, as the decision of it was pregnant with consequences no less important than the issues of life or death—the facts and experience of past ages were not to be lightly cast aside—and the profession must not allow themselves to be misled by plausible deductions (however ably advocated, as undoubtedly they were), even though they may be forcibly and dogmatically stated, and join in a general and indiscriminate condemnation of a line of practice, sanctioned by the experience of successive generations of able physicians, and still recommended by men such as Dr Alison, well entitled to guide the professional mind. Dr W. had only further to apologise for the very crude remarks he had made—totally unprepared, as he had been, to speak at all this evening—he having only been induced to do so from his unwillingness that a paper so able, by one so distinguished, and on a question so important, should pass undiscussed.

Dr W. T. Gairdner would not follow the other speakers in the discussion of the change of type in disease. He would, however, venture to remind the Society of a collateral subject, to which he (Dr G.) had given attention, and on which he had read a communication to the Society some years ago. Whether it were true or not, that the "Pneumonia" of Cullen and Gregory could be advantageously treated with blood-letting and antiphlogistics (as he saw no reason to doubt), it was very certain that the "Pneumonia" of modern physical diagnosis would not bear such treatment in many cases; and this, not because it was a less intense form of disease, as Dr Alison had remarked, but because it was not unfrequently a different disease altogether—different in pathology, different in symptoms, different in prognosis, as in treatment. He had adduced actual cases, related in great detail, and with great candour, by some of the most eminent French hospital physicians, in which they represented themselves as applying the conventional treatment of pneumonia to a disease, *stethoscopically* resembling it, and, indeed, undistinguishable from it, so far as physical diagnosis was concerned, but which a careful consideration of the symptoms showed to be no pneumonia, but collapse of the lung, induced by extreme debility, and requiring stimulants, tonics, and good nourishment for its cure. Such errors Dr G. believed to have been of constant occurrence in the hands of those who used the stethoscope injudiciously, and omitted to estimate correctly the relation of modern diagnosis to ancient practice. And, as ancient practice, applied according to modern nomenclature, proved nothing less than murderous, so it was impossible to argue, that because modern pneumonia was better treated without heroic remedies, these remedies were therefore inapplicable to the diseases to which they were formerly applied. Another disease, which had been greatly misinterpreted in modern times, owing to the false construction put upon stethoscopic indications, was pericarditis. Between the carditis of last century and the pericarditis of many modern physicians, there was scarcely more in common than between pneumonia in its gravest form and hysteria—the one a fatal, the other a comparatively trivial malady, for which, notwithstanding, Hope had not hesitated to recommend a lavish expend ture of blood, and a frightful profusion of mercury. It was very unjust to credit blood-letting, or any other remedy which had a right and a wrong use, with these extravagances, founded upon modern diagnosis misapplied. From one remark of Dr Andrew Wood's, he was compelled to dissent. He had quoted the contrasted experience of Sydenham and Morton as a proof that scarlatina, which was to the one physician scarcely a disease, had so far changed its type as to have become a severe and fatal disease in the time of the other. Now, he (Dr G.) did not deny that scarlatina might have changed its type then, as it undoubtedly often did in the present day. But Sydenham's assertion gave no sufficient proof of this; for it was not difficult to see that he had only a one-sided apprehension of the disease, which was at that time supposed to be of recent introduction. He knew it, and studied it, merely as a scarlet rash and a "slight effervescence of the blood." But he also knew and described a severe disease under the name of *angina maligna*, and that many cases of this must have been cases of scarlatina imperfectly observed, it was scarcely possible to doubt. The whole of Sydenham's description of scarlatina bore the marks of very cursory observation. In Morton's time the relation between the rash and the throat disease was better understood, though it was not fully appreciated till long afterwards.

The *Chairman* remarked, that the different types exhibited by the epidemic fevers of Edinburgh might also be pointed to, in addition to those adduced by Dr Wood, as well-marked illustrations of the general principles enunciated by Dr Alison.

March 5, 1856.—William Seller, M.D., President of the Society, in the Chair.

I. ATROPHY AND TRANSFERENCE OF THE LONG TENDON OF THE BICEPS MUSCLE.

Dr John Struthers exhibited a dissection of a shoulder joint, showing a curious change in its component structures. The preparation was from an aged female subject. Both shoulder joints exhibited the anatomical characters of chronic rheumatic arthritis; plentiful synovial fringes hanging from the ligaments; a commencing corona of cartilaginous and ossific vegetations, at the articular edge of the humerus; and partial removal of the cartilage, with porcellanous deposit on the glenoid cavity and head of humerus. The disease was more advanced on the right side. The intra-capsular portion of the long tendon of the biceps was completely absorbed on both sides, and its attachment was transferred to the humerus, at the inner side of the bicepital groove. On the right side the atrophy was nearly complete, the tendon reduced to a small yellow bundle, and the corresponding part of the belly of the muscle was also atrophied. On the left side, the tendon appears about half the natural size, and the inner side of the belly of the muscle is not much atrophied. The tendon is fixed chiefly to the bone, at the lower and outer part of the lesser tuberosity, and partly runs into the capsular ligament, where the latter bridges over the bicepital notch. The tendon feels soft and easily compressed, and when cut into, is seen to be a tube or sheath rather than a solid tendon. The probe is easily passed down its centre, and it may then be inflated with air.

This change of the biceps tendon has been well described by Mr Adams of Dublin, as a nearly regular occurrence in chronic disease of the shoulder. He (Dr S.) had noted it first in 1852, also in an aged female subject. From the notes made at that time, in his dissecting-room journal, it appears that the disease and atrophy existed, as usual in the rheumatic disease, on both sides. The atrophied tendon was yellow and flat, and attached to the humerus and capsule, as in the dissection now before the Society. On both sides there was a prolongation up from the point of attachment, on one side, as a cord, as large as a probe, free. within the joint, and then near the top of the glenoid cavity, losing itself in the capsule; on the other, a similar band projected, but was not free. These resembled prolongations of the wasted tendon, which had become more or less adherent to the inside of the capsule. Another instance occurred during the present Session, in an aged male subject, in whom several of the joints were in this diseased condition. The removal of this tendon was supposed to facilitate the farther changes in this disease, allowing the humerus to pass up and articulate with the acromion and coracoid processes. The use of this tendon in the shoulder is, I believe, to correct the tendency of the biceps muscle to pull the humerus up against the acromion. The tendency of the commencing action of the deltoid to do so, may be corrected by the action of the capsular muscles, especially of the supraspinatus; but, it is evident, the biceps tendon can be of no use in this way, unless it is tense—that is, unless the biceps is in action. As the biceps does not take its fixed point of action from the humerus, but from the scapula, its first tendency must be to pull up the humerus and hitch the tuberosities against the acromion and coracoid. But its long tendon passes like a belt over the top of the bone, and, being made tense, presses down the ball, and counteracts the above tendency. Hence the removal of this tendon facilitates the upward and forward displacement of the humerus; but the distance is very slight, as there is only a bursa and laminated cellular tissue, in the natural condition, between the acromion and coracoid, and the soft ball, made up by the tendons of the capsular muscles clothing the ball of the humerus.

II. REPORT OF THE SEA-BATHING SEASON IN SCHEVENINGEN OF THE YEARS 1854 AND 1855. BY DR P. M. MESS OF HOLLAND. COMMUNICATED BY DR CHARLES WILSON.

(*This paper appears in the present number of the Journal.*)

The *Chairman* expressed the very great obligation under which the Society was laid by the valuable contribution of Dr Mess. We were in this country also familiar with the good results of frequenting sea-bathing quarters, especially for patients labouring under nervous affection, and such accurately detailed reports were of great importance in guiding to a correct diagnosis of such cases as were likely to be benefitted by a residence at the sea-side. The cold, or sea-bath, it was to be remembered, was a very different thing in different parts of the world. In our latitude, we could not command such an elevated temperature as was enjoyed in the south of Europe, and we have therefore different results from the employment of sea-bathing. Dr S. found it advantageous, to compensate for the lower temperature, to employ the warm sea-water bath in-doors. The *Aphthæ Orientales,* mentioned in the report of Dr Mess, though a disease now unknown in this country, was noticed by the physicians of the last century, as occurring in individuals who had been resident in our eastern possessions. It was observed to be almost invariably fatal. In reference to the small number of patients affected with gout, the *arthritis anomala* of the report, frequenting the baths at Scheveningen, Dr S. remarked, that in this country also, up to a very late period, a general impression prevailed as to the unsuitableness and even danger of sea-bathing in this disease. Queen Caroline, however, the wife of George II., when she had all the cares of the regency upon her shoulders, had been accustomed to plunge the foot affected with this disease, into a bath of cold water.

III. NOTICE OF A CASE OF DEATH OCCURRING AFTER AMPUTATION, PERFORMED UNDER CHLOROFORM. BY DR MACKENZIE OF KELSO.

(*This case will appear in the next number of the Journal.*)

Dr Roberts was peculiarly interested in the subject of the present paper. It was remarkable that this case of Dr Mackenzie, and also the recent unfortunate case at Coldstream, had both occurred within a few miles of the residence of the patient whose case he had brought under the notice of the Society some weeks ago; he was impressed with the conviction that there must have been, in these cases, a sort of panic or dread of the employment of choloroform, and that this ought to be included among the concurrent unfavourable influences enumerated by Dr Mackenzie. He was convinced that this element had operated powerfully upon his unfortunate patient. It was a matter of thankfulness that his patient, and also the patient in the present case, had both demanded the administration of chloroform. In some respects the cases presented points of difference. In both there was an obvious change in the texture of the heart. In his case the walls were so attenuated that the finger could be distinctly seen through them; but the heart was small in size, and the fatal event supervened within one minute after the administration of the chloroform. The lady had just spoken, and begged him not to operate until she was completely over, when she fell to the floor with a loud snort, and never afterwards gave any signs of life. At the time when the unfortunate event occurred to his patient, Dr Roberts notebook showed that he had administered chloroform 2096 times, and had refused to employ it in 200 cases in which it was requested, so that he was not presuming too much in supposing that due care had been taken in its administration.

Dr Matthews Duncan said he could not believe there was any truth in the notion of panic fear of chloroform having any injurious influence in Dr Roberts' case in Edinburgh, or Dr Mackenzie's in Kelso, as these gentlemen had hinted. Dr Roberts' patient had insisted on getting chloroform against the advice of her surgeon, and her last words were to conjure him not to extract the tooth before the chloroform had taken full effect. Dr Mackenzie's patient would not consent to the performance of the amputation unless chloroform were used. Dr D. thought it must be a great source of comfort to these gentlemen, that in both their unfortunate cases, the patients demanded the chloroform, thus taking on themselves somewhat of the responsibility connected with using it. These gentlemen had laid the profession under obligations to them for the generous manner in which they had read the details of these cases to the Society, and sought the public expression of the opinion of the members upon the whole subject. At the last meeting of this Society, a crowded one, an individual was the subject of censure on account of his absence from the discussion. Dr Mackenzie had come from Kelso to read his case to this meeting,—a case of the deepest public importance,—and the Society could not regard with pleasant feelings the absence, not of an individual but of a whole class of gentlemen, who should have been present to give their opinions on the use of chloroform in the new position it now held. It was from this Society that the public first heard of this invaluable agent, and the Society was not doing itself justice if it did not continue to guide professioual and public opinion in regard to it. Dr Duncan said it must now be admitted that chloroform inhalation was occasionally, though very rarely fatal, under whatever circumstances of care and ability it was administered. This was a point of the greatest moment. The labours of physiologists and pathologists had not enabled us to point out when it was safe or when it was dangerous. The practitioner must, therefore, in the present state of our knowledge, simply accept the fact, that this agent did sometimes cause death, though very rarely, and this had important bearings upon his dealings with the agent as an anæsthetic. Dr D. had frequently been asked, and had frequently heard discussions as to how practitioners should bear themselves in regard to it. In Edinburgh there was certainly no panic fear of chloroform; quite the reverse; patients were constantly asking for it, and that not only for painful operations, but also when it could be of no use but merely an annoyance. This asking or demanding the agent was, however, a great encouragement to the practitioner in using it. In this way, the responsibility was at least divided between the patient and his physician. All the world knew that the use of this agent was sometimes followed by death; physicians knew no more; and if, knowing this, a patient asked for it, then if any untoward result happened, it must be a great comfort, as in Dr Roberts' and Dr Mackenzie's case, to fall back upon the patient's own expressed opinion. Dr D. would not refuse to give it in any operation. He would, in all severe operations, and in many other circumstances of urgency, as extreme fear, nervousness, etc., recommend and urge its use, in the firm belief that its benefits far exceeded any possible evil results. The time might come when the accumulation of observations of dangerous or fatal results of its use, might lead to the discovery of circumstances indicating when such results might be anticipated; or a safer agent might some day be substituted for it. These circumstances we at present did not know, although a good deal had been said and written about them. Dr Duncan had been honoured in having a very close connection with chloroform before and after its birth. He had not been father of the precious bantling, but had always taken a deep interest in it. He now thought that one error was committed at first in the mode of using it. Everything was done to encourage an excessive use of it. Too much chloroform could scarcely be used. The handkerchief was always to be soaked and steadily applied, till deep anæsthesia came on. The patient was to be hurried through the various stages of its influence, to complete insensibility. There could be now no doubt that this was not the best advice. It was not sufficiently cautious. Nevertheless it had this excuse, that at that time no deaths had occurred from its proper use, or if they had occurred, they were not credited. To use the agent successfully, it must be applied with a free and liberal hand, no doubt. The administrator must have a large quantity on his handkerchief, but he should always be attentive and anxious, and remember that skill in his art consists in giving, not a thundering dose, but as little as is consistent with the full advantage to the patient from its use. Dr D. remarked that in the valuable writings of Dr Snow and others, on the modes of death from chloroform, sufficient attention was not paid to a form of alarming or dangerous sinking coming on very soon after its use had apparently been effectually and successfully completed. He, in a large experience, had never seen a case of death, but he had repeatedly seen unpleasant symptoms, especially of this kind. Dr Mackenzie's case would, by some, be regarded as a fatal case of this kind. The worst case Dr D. had ever seen, was of this nature. A delicate feeble lady, who passed much of her time sick in bed, had a tooth extracted by a dentist in town; after wiping the mouth, seeing the patient give evidence of awakening, etc., she was laid on a couch to repose. It was then she became almost pulseless, cold, and the breathing could with difficulty be perceived. Ammonia to the nostrils, artificial respiration by compressing the chest, and other simple means, revived her, after the lapse of some time, so far as to admit of wine being swallowed, and she recovered. This case very much resembled Dr Mackenzie's, only there was no hemorrhage, no frightful laceration of the body, and no drunken habits. This state must be distinguished from a condition of weakness, pallor, and tendency to sickness, which Dr D. had occasionally seen follow the excessive use of chloroform, as it was originally employed. Dr D. agreed with the whole scope and tenor of Dr Mackenzie's paper, and thought the Society were much indebted to him for it.

Mr Benjamin Bell agreed with Dr Duncan in regretting the absence of several gentlemen who, from their large experience, might have taken a prominent part in this discussion. He gave Dr Mackenzie great credit for the clearness and candour that characterised his excellent paper, which he regarded as suggestive of some questions of great importance in connection with the administration of chloroform. His own experience had been limited, but still he had met with two cases in which alarming symptoms supervened, bringing the patients, as he thought, to the very verge of a fatal termination. One case was that of a child, two years old, on whom he operated for staphyloma. Here, of course, the element of fear as to the effects of the anæsthetic was entirely excluded, and the little patient seemed to come under its influence in the most satisfactory manner; but the sensibility was very long of returning, and breathing became alarmingly slow, the respirations, at one time, not exceeding five or six in the minute. This anxious condition lasted for nearly half an hour. The second case was that of a lady who was about to have several talpae removed from her scalp. As she was a person of full habit, and rather corpulent, he was averse to the use of chloroform on an occasion so trivial, and only yielded, after some pressing on the part of the patient, who was familiar with the effects of it, having taken it during her last confinement some years before. The chloroform being applied in the usual way, she took several full inspirations, and was very rapidly under its influence. One of the tumours was removed, and he was proceeding to remove another when she awoke and called out for more chloroform. The handkerchief was re-applied by her husband, who was present; she inspired deeply, and almost immediately her features became blank, and devoid of expression, and a death-like pallor spread over them. The pulse at the wrist seemed gone. Cold water was dashed on the face, and other means employed, and she speedily recovered from this alarming syncope. Here there was no reason to suppose that apprehension had any share in producing such dangerous symptoms. There was no fear of chloroform, as already mentioned, and no fear of the operation, inasmuch as she had submitted to a similar procedure on two previous occasions. He considered it a nice question to decide, whether or not chloroform had led to the fatal issue in the case narrated by Dr Mackenzie. It must be borne in mind that there were conditions present which must have seriously endangered the patient, independently altogether of its administration. His intemperate habits, and gross constitution, and feeble heart, rendered him a very unfavourable subject, both for the accident itself and the subsequent operation. Still the chloroform may have had some share in the immediate production of a fatal issue.

Dr W. T. Gairdner was glad that this case, so ably reported by Dr Mackenzie, had not been allowed, like that of Mr Roberts', at a former meeting, to pass *sub silentio.* He felt that they should not be doing justice to the great moral courage and sound professional feeling displayed by these gentlemen, in bringing forward their experience on this subject, if they did not meet them in a spirit which tended to lighten the weight of their responsibilities, and assure them of the sympathy of the Society with their position. For anything that had been shown to the contrary, there was not one of the members present to whom similar accidents might not occur. He had been led, at a former meeting, to propose a committee of the Society in relation to this subject, believing that it had not had in Edinburgh that free and fair consideration which might reasonably be expected from us, and especially from this Society. He was not about to renew that motion, though he still regretted it had not found favour with the council. He saw nothing but good in discussing the dangerous and fatal accidents of chloroform inhalation, and he was convinced that members of the Society and medical men in Scotland, could furnish important information on the subject. There had been from the first, in Edinburgh, a marked indisposition to admit and much more to publish, such facts. Thus the first case of death by chloroform was maintained to be owing, not to chloroform, but to suffocation by a little brandy which was given as a restorative. Soon afterwards, a report on chloroform was presented to this Society, in which it was shown to be a narcotic agent of great power, producing coma and death in animals to whom it was administered. It would be remembered, on that occasion, that Dr Simpson objected to the term coma, as likely to prejudice the public, by representing chloroform as a dangerous agent. This was, perhaps, natural enough in the early days of chloroform, when it had to make its way in the world, but surely no one would deny now that coma was the proper term to use, and that the death of the young woman at Newcastle was owing to chloroform, and not to brandy. Now, the time was surely past for being nervously afraid of the reputation of chloroform, if, indeed, there ever was a time when the profession, as a whole, was not disposed to give it fair play. Like every other good thing, chloroform had had to make its way against some prejudices; it had met with violent opposition from individuals—sometimes ungenerous and unreasonable opposition. But there never was, in the history of the world, so easy a triumph over opposition; never so rapid a recognition, by mankind, of a new discovery in medicine. The medical profession, as a whole, was enthusiastically in favour of chloroform from the first; the objectors were always in a minority. Surely, then, we can afford to look at the accidents caused by chloroform, and even to discuss them without uneasiness. Yet facts constantly transpire in private circles which never reach the public. Within the last three weeks, he (Dr G.) had been informed of three distinct cases of reputed death by chloroform, which had been the talk of a neighbourhood (not in Edinburgh), but which would, probably, never be noticed in any more public way. Such events do more real harm to the cause of chloroform than the freest discussion.

Mr Lister was by no means prepared to say that death from chloroform necessarily implied fault on the part of the administrator; but, at the same time, he could not but feel that it was dangerous to admit, except upon the strongest evidence, that fatal cases are unavoidable even in rare instances. Such an admission would, he feared, tend to encourage laxity of practice. The great principle which, as he believed, ought to be impressed upon the mind of every medical man in connection with this subject, was that, if he always paid the requisite attention to the patient at the critical time, viz. when the full effect of the anæsthetic had been produced, he would be pretty sure to avoid unpleasant consequences from its use. Mr L. confessed, that when called upon, after his arrival in Edinburgh, to give chloroform extensively in public, he was not without serious apprehensions lest the first, or almost the first, fatal case in this city might occur in his own hands. The result of subsequent extensive experience, however, had been to increase more and more his confidence in the safety of chloroform, but, at the same time, to impress him deeply with the absolute necessity for vigilant care during its administration. Cases like those to which allusion had been made, in which death had occurred after the patient had exhibited signs of returning consciousness, must be excessively rare; and it was, he thought, a fair subject for inquiry, whether, in such cases, chloroform had any thing to do with the fatal event. With regard to the case before the Society, considering that eight minutes had elapsed after the handkerchief had been removed from the patient, during which time the pulse and respiration had both been observed to continue equable and natural, and considering further, that the patient had shown evidence of returning sensibility, he thought there could be no doubt that Dr Mackenzie was right in acquitting chloroform of being in any way the cause of the sudden cessation of the pulse, which, on the other hand, would have been sufficiently accounted for, under any circumstances, by the state of the heart, as it had been described. Mr L. had been absent from the meeting at which another case of death, after the administration of chloroform, had been discused; and he was far fromattributing want of care to any one concerned in it.

Dr John Struthers was of opinion that the Society should be careful not to excite or foment any panic in the public, with regard to the supposed danger of the employment of chloroform. The wonder rather was that there had been so few deaths during its use, even as coincidences, when we consider how very frequently it had been given. In our Infirmary, for instance, where chloroform had been freely used in nearly all cases of operation, and in other circumstances, —there had been only one death during its use, which had been published some time ago. Now, supposing that it had been given, say five times daily, for these nine years, this would give 15,000 times. The same number of cases, in which opium, aconite, or digitalis had been efficiently used, would probably give a greater proportion of casualties. Again, notwithstanding what had been said, had we any fear about it for ourselves or our friends? It is the duty of the medical man to allay any prejudices in the public, by giving full weight to these considerations, as well as to represent fairly the immense benefits conferred by the use of this agent. Nobody doubted that the rash use of chloroform might be dangerous, like any other agent. In regard to Dr Mackenzie's case, laid before the Society to-night, and the few other fatal cases, all that could be said was, that the patients died while under the influence of chloroform. What we had heard to-night shows that chloroform may cause death, or danger, in two ways—by syncope, the patient dying suddenly, without lividity or obstructed respiration; and by asphyxia, as in the two interesting cases just mentioned by Mr Benjamin Bell, in which danger was evidently threatened. In the latter, the symptoms give warning, and the means of restoration may be applied, while in the former the event occurs unexpectedly and suddenly, just as in other cases of syncope. It only remained, as a duty of the Society, to thank Dr Mackenzie for bringing this case before it, and to express what appears to be our unanimous opinion, that no blame whatever can attach to the medical gentlemen in Kelso in connection with this case, either in regard to the administration of the chloroform or the performance of the operation.

After some observations by the *Chairman*, Dr *Mackenzie* said,—He should indeed be deserving of being considered insensible to kindness, did he not take the opportunity, before separating, of expressing his sense of obligation to the Society, for their patient hearing of his paper, containing, as it did, the report of a case which had distressed him much. He thanked those gentlemen who had spoken in so highly complimentary terms of the paper, and expressed his gratification to find the unanimous voice of the Society corroborating his view of the cause of death, and their approval of the treatment of the case pursued by himself and Dr Douglas. In reply to some observations which fell from Dr M. Duncan Dr M. said,—He quite agreed with Dr D., that as little chloroform should be administered as would serve the purpose, but could not too strongly disapprove of this being understood to mean putting a few drops at a time on the handkerchief, which served only to excite and torment the patient. On the contrary, Dr M. recommended the very liberal use of the agent, but great care should be employed to keep the handkerchief at some distance from the mouth and nostrils, so that a very free admixture of air with the vapour of the chloroform is secured.

REPORT BY THE ROYAL COLLEGE OF SURGEONS OF EDINBURGH, ON THE BILL BROUGHT INTO PARLIAMENT BY MR HEADLAM, "TO ALTER AND AMEND THE LAWS REGULATING THE MEDICAL PROFESSION."

This College have carefully considered Mr Headlam's Bill; and whilst they admit that its provisions embrace several desirable objects for which they have long contended,—viz. 1. The Registration, by authority, of all qualified Medical Practitioners; 2. The establishment of uniformity of Education, Examination, and Privileges throughout the United Kingdom; and 3. The publication of a National Pharmacopœia,—they are satisfied that the mode in which it is sought to attain these and other objects is in many respects highly objectionable. They believe that if the Bill were passed in anything like its present shape, it would have the effect of unsettling the whole previous working of the profession, without permanently and satisfactorily settling anything—that it would give rise to much jarring and discontent—and whilst it would not benefit the public, would seriously damage those Institutions through which the profession has hitherto been regulated, and which, especially of late years, have been steadily introducing improvements calculated to raise the status of medical men, and render them more worthy of the confidence of the community.

Having thus premised a general opinion in regard to the Bill, the College now proceed to comment upon its principal provisions in detail.

1. *As to the Institution of a Medical Council.*—This College do not see what duties can properly fall to be discharged by a Medical Council, except to fix a minimum Course of Study, and to exercise such a superintendence over the various licensing boards as shall secure that they faithfully discharge their duties as Examiners. It appears to this College that these desirable objects would be best accomplished by a Commission or Council, consisting of not more than five men of eminence selected by the Crown; and that by their advice the Home Secretary might from time to time fix the minimum course of study, and appoint Inspectors to see that the licensing bodies properly discharged their duties. This Commission might also act as a Court of Appeal in all disputed matters connected with the regulation of the profession. To the establishment of a Medical Council such as that contemplated in Mr Headlam's Bill this College would strongly object—1. Because, from the powers with which it is proposed to intrust it, it would come virtually to supersede in their functions those bodies which have hitherto regulated the Medical Profession; 2. Because it is too numerous for efficient deliberation ; 3. Because being liable to be changed either wholly or partially every three years at the will of the electors, its decisions may want uniformity; 4. Because it introduces into the profession the system of popular elections recurring every three years, which will probably give rise to canvassing, intriguing, and strife, and thereby tend rather to cause disunion than to promote the best interests of the profession and the comfort of its members. Besides all this, its working will be expensive, and it will be extremely difficult if not impossible to arrange the time and place of its meetings, so as to suit the convenience of all its members alike. In fine, such a Council, in the opinion of this College, would be calculated rather to produce confusion than to promote order and progress.

2. *As to the Registration of Qualified Practitioners.*—The system of registration proposed by the Bill is in the opinion of this College too complicated, and unsuited to the present condition of the profession. The medical directors at present in existence, wherein each man is registered according to the various qualifications which he may happen to hold, if sanctioned by authority, and placed under the charge of specially-appointed public officers in each of the three kingdoms, appear to this College to exemplify the most desirable system of registration that could be adopted, being at once simple, comprehensive, and inexpensive. To the appointment of *one* medical registrar for the three kingdoms, having his office in London, this College would decidedly object as neither just nor convenient for Scotland and Ireland. There ought to be a medical registrar for each of the three kingdoms, having offices in London, Edinburgh, and Dublin respectively. Further, this College consider that these appointments, which ought to be moderately but adequately salaried, should be held by qualified medical practitioners appointed by the Crown.

The Bill enacts that a fee of ten pounds shall be paid by every qualified practitioner when he first places his name on the register. The College would in the strongest terms protest against so heavy a fee being laid on the profession. Already the fees payable for medical degrees and diplomas, together with the necessarily great expense of a medical education, press heavily on medical students ; and the addition of this new and exorbitant tax would, in the opinion of the College, not only form a barrier against the entrance of deserving but not affluent individuals into the profession, but would also, in all probability, lead to a great increase of irregular and unregistered practitioners. Besides this, the large sum which would accrue from the imposition of this tax would, in the opinion of the College, be much greater than could be at all necessary to cover the legitimate expenses of any desirable medical act. With regard to that provision of the act which declares that any surplus which shall remain after defray-ing the expenses of carrying it into execution is to be applied in forwarding medical education and medical science, this College consider that it ought in justice rather to be applied in reducing the expense of future entrants.

3. *As to the Preliminary Examination in general Education.*—The bill provides that the Medical Council are to appoint Boards of Examiners in London, Edinburgh, and Dublin, to examine candidates in general education, and that a fee of two pounds is to be exacted for this examination. To the expediency of a preliminary examination, this College, as well as other licensing boards, are quite alive; and they have testified this by having carried it into effect for some years past; and they believe from their experience that this desirable object may be carried out efficiently and much more economically by the licensing boards themselves, whereby the fee to be paid by candidates might in all probability be reduced to half a guinea.

4. *As to the clauses* (26 and 27) *with reference to the Examination to qualify Physicians and Surgeons*, this College must express their unqualified dissatisfaction with these provisions, which have been introduced by the framers of the bill in manifest ignorance of the manner in which medical qualifications are conferred in Scotland. A few words of explanation will render this sufficiently apparent. At present, besides the examinations conducted by the universities as a condition in conferring medical honours, and an examination by the Royal College of Physicians of Edinburgh in the case of *foreign graduates* applying for admission to their *fellowship*, the *only* medical examinations in Scotland are those of the Royal College of Surgeons of Edinburgh, and of the Faculty of Physicians and Surgeons of Glasgow. The examinations of both these bodies embrace the four departments of medicine to which the Bill is intended to apply, there being no Apothecaries' Company in this part of the kingdom possessing the right of examining and licensing for the practice of pharmacy; and the Royal College of Surgeons of Edinburgh, especially, a large majority of whose fellows and examining board are graduates in medicine, do not confine their examinations to surgery and its associated branches, but include all the subjects embraced in a very extended curriculum of study, adopted many years ago, and from time to time improved; and their diploma is accordingly regarded as qualifying for general practice, excepting as restricted by the operation of the Apothecaries' acts in England and Ireland.

Mr Headlam's Bill, while it proposes to give to the Glasgow Faculty the uncontrolled power of licensing surgeons without calling in the aid of any other body, proposes in Edinburgh to give to the College of Physicians the right of examining and licensing physicians; and also, conjointly with the College of Surgeons, the right of examining and licensing Surgeons,—a right hitherto enjoyed solely by the latter-named College.

On what principle, or with what view to the benefit of the profession or the public, the College should thus be asked to surrender the greater part of their privileges, they are at a loss to determine. They have ever been forward in extending their educational requirements and improving their examinations in proportion to the advancement of medical science,—their diploma has always enjoyed a high reputation;—their funds, after providing for their necessary expenses, have been devoted to the building of their present Hall, which cost L.20,000—to the establishment of an extensive Anatomical and Pathological Museum, which has cost a large additional sum, and which is kept up at considerable expense for the benefit of the profession and of the public, to whom it is easily accessible;—and, without making any vain boast, they assuredly include amongst their Fellows a sufficiency of talent to enable them to conduct their examinations in all the departments of medicine, and to entitle them to retain their present licensing powers without being obliged to call in extraneous aid.

The Bill obviously contemplates that those once registered either as physicians or as surgeons shall be legally entitled to practise the profession in any or all of its branches. If with this view it is thought necessary to have surgeons examined in medicine, it is surely equally necessary to have physicians examined in surgery. The Bill provides for the former, without making any provision for the latter; and, while it proceeds on the assumption that Colleges of Physicians possess all the requisite elements for constituting Examining Boards in every branch of the profession, infers that the Colleges of Surgeons are not competent to do so. This inference has been shown to be groundless in regard to Scotland, and the College strongly object to the distinction founded upon it.

5. In clauses (26 and 27) a distinction is made between physicians and surgeons as to the age at which they ought respectively to be allowed to register. This appears to be founded upon the supposition that surgery requires for its study less time than medicine. From this opinion the College entirely dissent, and would recommend in preference the adoption for both of the uniform age of twenty-one.

6. *In reference to the clause* (28) *providing that a member of any College removing from one division of the kingdom to another, shall not only be required to attach himself to the College of the county to which he removes, but shall also pay an admission fee to that College*,—this College consider that in such cases the practitioner should not be required to pay the usual admission fee of the College to which he is then attaching himself,—and that the only expense to which he ought to be put, in addition to the fee of registration, should be merely nominal, so as to cover the expense of admission,—which fee should be named in the Act. This is the more necessary in the case of this College, because they are at present on a par with the Royal College of Surgeons of England in regard to the privileges conferred by their diploma in every part of the country; and the effect of this new enactment would be to interfere with privileges which they at present possess.

7. In clause 30 of the Bill it is provided that the duration of the course of study for medical practitioners shall be five years; but this College are of opinion that this is a matter which should be left for the consideration of the Medical Council, who ought not to be fettered in regard to it by any positive enactment on the subject.

Such are the principal observations which this College have to offer on Mr Headlam's Bill. They have only further to express their conviction that, in its present shape, it is not such a Bill as ought to obtain the confidence either of the public or the profession; and this College, unless the alterations above suggested, or at least the most important of them, be adopted in committee, will feel it to be their duty to give all the opposition in their power to the Bill in its future stages.

By authority of the College,
ANDREW WOOD, M.D., *President.*

RESOLUTIONS IN REFERENCE TO MR HEADLAM'S MEDICAL BILL, ADOPTED BY THE ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, AT A MEETING HELD ON THE 18TH MARCH 1856.

I. That the Royal College of Physicians of Edinburgh have learned, with much satisfaction, that the subject of Medical Reform, which has so often been under their consideration, and in which they have so often endeavoured to interest the Legislature, is again brought under the notice of Parliament, in the Bill introduced by Mr Headlam; and they have endeavoured to give expression to that satisfaction, by petitioning in favour of the measure, while they are of opinion that several of its details are susceptible of improvement.

II. That the College are gratified to find that this measure proposes to establish several principles, which they have consistently advocated. In particular, 1st, Uniformity of Qualification; 2d, Uniformity of Privilege; 3d, the Abolition of all Monopolies; 4th, The Registration of all Qualified Practitioners; and, 5th, the publication of a National Pharmacopœia.

III. That the attention of the framers of the Bill should be called to the fact, that the titles of several Scotch Acts, affecting the medical profession in the northern division of the kingdom, have not been inserted for repeal in Schedule A of the Bill.

IV. That the College are of opinion, that the plan of a Medical Council, as proposed in the Bill, is in several respects objectionable: at the same time regarding Mr Headlam's Bill as a compromise between opposing interests, the College desire, in the meantime, to refrain from criticism upon the details of the composition of the Medical Council: That they cannot avoid remarking, however, that the number of the Council (twenty-four) is inconveniently large; and that if its meetings are at all frequent, an undue influence in its business will undoubtedly be acquired by those who, from locality and other circumstances, may find it most convenient to attend with regularity: That to avoid this evil, the College are of opinion, not only that the number should, if possible, be reduced, but that large administrative powers should be intrusted to a sub-committee in each division of the kingdom, composed of the members of Council for that division: That the College are likewise of opinion that each sub-committee should be empowered to appoint a secretary, who should also be the registrar for the division of the kingdom in which he is appointed: That this arrangement, the College believe, would be less expensive, and more satisfactory to the medical profession of Scotland, than the one proposed in the Bill, by which all the offices under it, and all the business of the Council, would virtually be centralized in London, to the great impediment of local business.

V. That the College observe with pleasure the provisions of the Bill, assigning to the several incorporations in Scotland a place in the examination of the general practitioner or surgeon: That they think it is obviously for the advantage of the public, that the examination of the surgeon should be conducted by both the Royal Colleges in Edinburgh: That they would be willing, however, to consent that a similar plan should be followed, at least so far as Edinburgh is concerned, in the examination of the physician, which by Clause XXXVI., is committed to the College of Physicians alone: That the formation of a joint Board from the two Colleges for all purposes of examination, as proposed on many previous occasions, has always appeared, and still appears to this College, to be at once the most equitable and the most convenient for all parties: That the College trust that it will be borne in mind by the Legislature, that at present the only bodies entitled to grant a license to practise medicine in Scotland, are the College of Physicians of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow—the powers of the former being limited to the city and suburbs of Edinburgh, those of the latter to certain counties in the west of Scotland.

VI. That the College earnestly trust that, in arranging the curriculum of study and the fees of license and registration, respect will be had to the fact, that in very many districts of Scotland, the income of practitioners, highly respectable in point of attainment, does not exceed L.150 per annum; and that any additional expense thrown on the course of study would diminish the numbers of this very useful and meritorious body, leaving the field to be occupied by unlicensed pretenders: That the College had lately occasion to inquire into the deficiency of medical practitioners in the Highlands and Islands of Scotland; and a Report, most carefully prepared by their Committee on this subject, reveals the scanty pittances for which many excellent men laboriously work, and the great destitution of medical advice under which large districts of the country labour: That a fee of ten pounds for registration seems much too high, and a curriculum of study of five years too long, for the general practitioner of a country district.

VII. That the College regard with extreme jealousy the power conferred on medical incorporations by Clause XXIX. of the Bill, regarding the erasure of names struck off from the Register: That the nature of the misconduct for which the name of a member could be struck off the Roll of a College, and thereby off the General Register, should be very rigorously defined, and a power of appeal ought to be lodged somewhere, in order to protect the interests of individual practitioners.

VIII. That the College are of opinion, that a medical practitioner, on transferring his residence from one division of the kingdom to another, should be entitled to be admitted to a corresponding status in the College of that division in which he proposes to settle, without further examination, and merely on payment of a fee sufficient to cover the expense of his admission. In name and by authority of the College,

James Begbie, M.D., *President.*

EDINBURGH PRACTICE OF PHYSIC CHAIR.

To the Editor of the Edinburgh Medical Journal.

5, Eastfield, Leith, 25*th February* 1856.

Sir,—In replying to Professor Christison's letter, published in the February number of your Journal, I would have been very short, had I restricted myself to a simple denial of the truth of his allegation, that my "statement was unfounded;" but explanations are necessary, and these will unavoidably add to the length of my communication. Professor Christison was not called upon to pronounce an opinion as to the effect which, he assumes, a statement of mine might have on *any* class of your readers. I take leave to remind him, that *every* class of readers expects him to deliver an unvarnished tale, when he comes forward to contradict such a statement, and to be candid, and not disingenuous. He was still less entitled to make a small extract from the middle of a sentence of my reported speech, and disjoin it from the context. The sentence runs thus:—"The last occupant of the Chair of the Practice of Physic was removed from the Chair of Materia Medica; and there is every reason to believe, if the Council had offered the same Chair to the present occupant of the Materia Medica Chair, he would have accepted the honour of being promoted to the bishopric, and left Dr Bennett in the undisturbed possession of his curacy as Professor of the Theory of Medicine." On the 14th August, the Town Council received the unconditional resignation of Professor Alison, and agreed to accept the same; to advertise the Chair vacant, and that it would proceed to elect a Professor at its meeting on the 3d October. The Council, by this proceeding, was precluded from offering the Chair to any one; and, whatever might have been the views of some of its members as to Professor Christison's eligibility, the Council itself never, at any time, entertained any resolution to proffer to Dr Christison such an honour. Now, what were Professor Christison's own wishes? There was, before the next meeting of Council, on the 4th September, a strong and general impression among the Councillors, from its being reported that a friend and confidant of his was actually canvassing for his Chair, that his own translation to the vacant Chair was contemplated. It is, however, a fact not to be disputed, that, about the beginning of September, a Councillor did call on Professor Christison, to urge him to become a candidate, and that the Professor, while feeling honoured by his favourable opinion, stated that he could not enter into the arena as a competitor with younger men; but should the Council think fit to offer him the Chair, he would consider it his duty at once to accept the Professorship. Such were the circumstances from which my *belief* was drawn, and that belief Professor Christison was not, therefore, warranted to charge as "groundless." On the 11th September, he addressed a letter to the said Councillor, *withdrawing* the consent he had formerly given to accept the Chair, if offered, and he has since published his reason for doing so, that he "foresaw, with so little preparation before the commencement of the University session, (his) professional occupations would frequently render it quite impossible for (him) to prepare the lectures from day to day." It is to be remarked, that this change was communicated in the heart of the canvass, after many Councillors, though not pledged, had expressed themselves as favourably impressed with the claims of several of the candidates. Dr Christison's acknowledgment, that he was unprepared to undertake the duties of the Chair, was, independently of the uncertainty to obtain it, a very good reason for withdrawing his former consent to accept the Professorship should it be offered, but it afforded a far stronger one, why he ought never to have expressed or entertained any desire for it. In order that the application of the quotation from my speech, referred to at the beginning of this letter, may be understood, it is necessary to trace Professor Christison's conduct during the whole course of the election. I have explained how far he was interested personally from the commencement to the middle of the contest; after that period he assumes a new part, and, within a week of the election, he takes Professor Bennett under his special protection, and, at that gentleman's request, thrust himself upon the Lord Provost's attention, by addressing a letter to his Lordship, which is published in the newspapers, as well as printed, and copies of it sent to the Patrons, wherein he urges the following pleadings:—"Distinction in one step is held to be the strongest of all reasons for promotion to a higher. The public indignation is roused by any instance of flagrant disregard of such claims for preferment; and he would scarcely escape having his honesty of purpose called in question, who should insist that, for the public good, a man ought to be kept in a *curacy* who is fit to be a *bishop*." The Professor's logic and ethics are both incomprehensible. Have not all the Professors equal rank, and is not each and every one of them bishop alike? When he acknowledges, in his own letter, that he would "be more useful to the University in his present Professorship," he proves that "distinction in one step is not the strongest of all reasons for promotion to a higher;" and he furnishes, in his own person, a conclusive example, that, although it be universally admitted he is a pre-eminently distinguished teacher of Materia Medica, as he was also of Forensic Medicine,—a Professor may not be equally qualified for every Chair. The inquiry would be more curious than instructive, to investigate into the causes, which led Professor Christison first to discover that Professor Bennett, with nearly twenty years less experience of Practical Medicine than he had, was better qualified than himself, to undertake the duties of the Chair of the Practice of Physic. It is, however, a coincidence worth noticing, that his "indignation" was publicly "roused" about the very time when Dr Laycock's merits became better known to the Patrons; and it has been shewn that there was a period, during the canvass, when Professor Christison manifested no intention nor inclination to remove Professor Bennett from his *curacy* of the Institutes of Medicine. Whence then, let me ask, arose the necessity of Professor Christison's outcry about "honesty of purpose?" Assuredly, if he be himself exonerated from the charge he prefers against others, he will owe his "*escape*" entirely to their forbearance and charity, qualities with which he does not appear to be greatly distressed. After perusing the preceding explanation, your readers will be enabled to decide, whether I was justified in making the statement Professor Christison complains of, or whether he was warranted in characterizing what I said, as a "mis-statement."—I am, Sir, etc.,

JOHN RENTON.

ROYAL COLLEGE OF SURGEONS—SECOND CONVERSAZIONE.

The second conversazione of the Royal College of Surgeons for the season took place on the evening of February 29th, when an exposition was given by Dr Douglas Maclagan, Lecturer on Materia Medica in Surgeons' Hall, of "the Modern Processes for the Detection of Mineral Poisons." The subject being one that related to forensic medicine, the leading gentlemen of the legal profession were specially invited to attend.

Among the company were Earl Ducie, the Lord Provost, Lords Deas, Ardmillan, and Mackenzie, the Solicitor-General, Sheriffs Cay, Baillie, Hunter, Thomson, Mure, Montgomerie Bell, Davidson, Sandford, Hallard, Cleghorn, Logan, and Tait, etc., etc.

The President (Dr Andrew Wood) made a few introductory remarks expressive of the pleasure which the Members of the College felt in meeting with the gentlemen present, and, in particular, with the members of the legal profession, inasmuch as the subject of exposition was one of common interest to both.

Dr Douglas Maclagan commenced by contrasting the state of the chemical modes of detecting poison in use fifty or sixty years ago, with the present advanced state of knowledge on the subject. He noticed particularly the well-known case of Miss Bandy, who was tried about the end of last century for the murder of her father by the administration of arsenic. Dr Maclagan criticised the evidence offered at the trial by Dr Addington, and showed that the tests of the poison on which he relied were, without exception, erroneous, being in fact no tests of the metal at all. Fortunately, however, the case was clear without the medical evidence, and the responsibility of the conviction that followed did not altogether rest upon it. The lecturer then referred to the labours of Orfila, the celebrated French chemist, who was the first writer of distinction on the detection of poisons. He next alluded to the services of Professor Christison in the same field of inquiry, and paid a tribute of admiration to his genius, as well as of gratitude for the special benefits he had derived from him as a student. Dr Maclagan then exhibited the various tests now in use for discovering arsenic, and particularly described the processes of Reinsch and Marsh, which were at once delicate and decisive, and even in the minutest quantity detected with certainty the existence of the fatal poison. Dr Maclagan concluded as follows:—My object has been, not so much to set before you the details of medico-legal analysis, as to establish the fact that progress has been made in this department of science, and to show the reliability of the evidence which we can produce in such cases. We have seen a crime, flagrant and recent, affording superabundant material for detection, a century ago clumsily investigated, or rather, so far as toxicology was concerned, not proved at all. We have seen that now we possess means by which crimes of diabolical ingenuity may be brought into the clearest light, although the silence of years, and the darkness of the grave seemed to have hidden them for ever from human cognisance. You must not, however, associate modern medicine too closely with the ideas which this night's exposition may have invested it, for, whilst she has a firm grasp and a strong arm, with which she can seize the criminal and drag him to justice, remember that she has not the less a soft and gentle hand, which she lays soothingly on the fevered brow and shattered limb.

The Lord Provost, in moving a vote of thanks to the lecturer, remarked he had, with great delicacy, refrained from alluding to events that had recently occurred, although these gave unusal interest to this subject at the present time.

Dr Begbie seconded the motion, which was carried with acclamation.

The assemblage then withdrew to an adjoining hall, where tea and coffee were served, and various objects of interest were submitted to the inspection of the company.

Another conversazione was held on the 28th of March, when a most interesting lecture on Gunshot Wounds of Joints was delivered by James Spence, Esq., to a numerous audience. Full details may be expected in our next number.

ROYAL MEDICAL SOCIETY—CONVERSAZIONE.

It having been resolved by this Society, instead of the annual dinner of its members at this season, to follow the example of the Royal College of Surgeons in its recent and successful *conversazione*, there was on the evening of Wednesday, 27th February, a *réunion* within its walls of gentlemen of the medical and literary professions. About 200 invitations had been issued, and the attendance was little short of that number. The company were received in the library by Mr A. G. Duff, the senior-president, by the other presidents, Dr John Sibbald, Messrs Spasshat, and A. R. Simpson, and by Mr J. F. Macfarlan, the treasurer. Some time was spent in mutual introductions and conversation, in the examination of the library, which is one of the finest medical libraries in the kingdom, and in the inspection of books of plates, and of numerous microscopic objects—large numbers of microscopes having been obtained for the occasion from the different members of the society. About eight o'clock the company were conducted up stairs to the magnificent hall of the Society, which was first opened about two years ago, and has since been painted in a highly ornate style. After some introductory remarks from Mr Duff, who occupied the chair, Professor Goodsir delivered a lecture on "Life and Organisation," which was listened to with the greatest interest, and which, we are glad to hear, is about to be published, at the request of the Society. The Rev. Mr Coventry, who was the oldest member of the Society present, moved that the thanks of the members be given to Professor Goodsir for his able lecture; and Professor Laycock, who called himself the youngest visitor, proposed the same compliment in behalf of the strangers present. The company again returned to the library, where tea and coffee were served, and about ten o'clock began to disperse.

VARIETIES.

HONOURS TO EDINBURGH MEDICAL MEN.

DUBLIN.—Professor Simpson has been elected an Honorary Fellow of the King's and Queen's College of Physicians.

STOCKHOLM.—Professors Christison and Syme, and Dr Charles Wilson, have been elected foreign members of the Society of Swedish Physicians.

VIENNA.—At the principal meeting for 1855, of the Imperial and Royal Society of Physicians of Vienna, Dr Charles Wilson of Edinburgh was elected a Foreign Corresponding Fellow of that Society.

HOMŒPATHIC EMPLOYMENT OF MINERAL WATERS.—Dr de Carro has recommended the homœopathic patients, using the mineral waters at Karlsbad, to remove to Dresden or Hamburgh. He points out, as the grounds for this advice, that as the Karlsbad waters flow into the Tepl, this into the Ezer, and this again into the Elbe, they will probably find them in the requisite state of dilution about the position seawards of one or other of these cities.—*Wochenblatt der Zeitschrift der Gesellschaft der Aerzte zu Wien*, 14th January 1856.

IMPURE STATE OF THE EDINBURGH WATER.—At a late meeting of the Town Council, a letter was read from Dr A. Wood, Secretary of the Royal College of Physicians, referring to the impure state of the water now supplied to the inhabitants. It stated that, in the opinion of the College, this matter deeply concerned the health of the inhabitants. The impure state of the water with which Edinburgh was at present supplied was matter of general notoriety, and the frequency with which this had occurred of late years would appear to argue a deficiency on the part of the Company in providing the proper means for its filtration, or carelessness in using them. The water supplied by the Company was of very fine quality when not rendered turbid, and the Council of the College submitted that, considering the high water duty paid by the inhabitants, and the complete resources at the command of the Company, the public were entitled to demand that the Company should furnish invariably a limpid water which should not require filtration by the consumer. It had occurred to the Council of the College that, in the present Bill of the Water Company, the Town Council ought to endeavour to secure the appointment of some official who might act independently of the Company, and, on the part of the public, dedicate his whole time to observing whether the engineering and other operations of the Company were carried out in terms of their acts, and in such a manner as to secure to the inhabitants a due supply of water fit for domestic purposes and free from the impure ingredients with which of late years it has been so frequently mixed. The letter was remitted to a committee.

NOTICE TO CONTRIBUTORS.

As it is of the utmost consequence that the Journal should punctually be ready for delivery in London on Magazine day (the last day of each month), we have to intimate to Contributors that, generally, we cannot guarantee the insertion of any article received after the 15th; and in no case, however urgent, can any paper be inserted, if put into the Editor's hands beyond the 20th of any month.

We would also impress on our friends the importance of brevity, as extended or divided communications are less likely to attract the attention of the reader, than if concentrated into one article of moderate dimensions.

PUBLICATIONS RECEIVED.

The Transactions of the American Medical Association. Vol. 8. Philadelphia, 1855.
Ocular Spectres and Structures as Mutual Exponents. By James Jago, A.B., Cantab. London, 1856.
Headaches, their Causes and their Cure. By H. G. Wright, A.M. London, 1856.
A Practical Treatise on the Vesicular Hydatids of the Uterus. By N. H. Ashley, M.D. London, 1856.
Throat Ailments, etc. By James Yearsley, 6th Edition. London, 1856.
An Account of a Mode of Treating the Small Pox. By Henry George, M.R.C.S.L. London, 1856.
Remarks on "The Present State of the Theory and Practice of Medicine," being a Review of Dr Bennett's Introductory Lecture. By John M'Gilchrist, M.D. 2d Edition, with Notes and an Appendix, pp. 42. 1856.
Sixteenth Annual Report of the Registrar-General. London, 1856.
The Education of the Imbecile and the Improvement of Invalid Youth. Published for Behoof of the Home and School for Invalid and Imbecile Children. Edinburgh. 1856.
On the Study of Medicine: The Introductory Address at Surgeons' Hall—Session 1855-6. By John Struthers, M.D., Lecturer on Anatomy.

Part First.

ORIGINAL COMMUNICATIONS.

Article I.—*Clinical Retrospect of Cases treated during the Session 1855–6 (November to March); including Remarks upon the more important Fatal Cases, and upon the Cases of Inflammation of the Lungs treated during that period.* By W. T. Gairdner, M.D., Physician to the Royal Infirmary of Edinburgh, and Lecturer on Clinical Medicine.

[The following remarks are allowed to retain the original form of Lectures. For a considerable part of the Report I am indebted to the Notes of Messrs Chisholm and Spasshatt, who received equal prizes at the close of the Session, as the most distinguished Clinical pupils.]

I propose to occupy two lectures at this period of the session (middle of March) with a review of the ground we have passed over. I think it may be worth while to look collectively at some of those things which have interested us singly; and I prefer doing this now to doing it later, because it will give you an opportunity of thinking over some matters of great practical importance, to which we may hereafter have occasion to revert, in connection with cases which may yet come under our notice. I propose, *firstly*, to review the mortality of our wards, with the view of showing you of what elements it has been composed; and, *secondly*, to invite your attention to the cases of acute inflammation of the lungs, to their treatment, and to its results. The materials which we have before us are not, indeed, very great; not even so great as usual, for the season has not been a sickly one; still they are sufficient, I hope, to afford us both interesting and profitable reflections.

Since the commencement of the session, there have been 48 cases in Ward VI. (general ward for men); among these there were 9 deaths. In Ward XV. (general ward for women), there have been 75 cases and 11 deaths; while in Ward XVIII. (fever ward for women), we have had 43 patients, only 2 of whom have died. In Ward VI. the mortality has been great, rather more than one-fifth of the whole number having died. The fatality has been less in Ward XV., but there it has been large also—it amounted to nearly a seventh part of all the cases. Ward VIII. is remarkable for the small number of deaths that have occurred in it—this is owing, of course, to its having contained only fever cases.[1] This shows the way in which the general mortality of an hospital is made up. The fatal cases gravitate into certain wards, as they do into certain hospitals; you must take care, therefore, not to compare the mortality of one ward, or of one hospital, with another, without knowing all the facts.

For instance, a great many patients are sent to my wards, because it is supposed their diseases will prove interesting to you; many of these cases are of extreme organic disease; this tends to increase the frequency of death considerably. Thus, you see, this large mortality is not due to the treatment, but to the nature of the cases. This will appear more clearly immediately. The mortality of the Edinburgh Infirmary is large. In this respect it resembles some of the London hospitals, whose number of deaths is greatly increased by the character of the cases admitted; Guy's Hospital, in London, for example, presents a high rate of mortality, and so do many others. The mortality is large here in Edinburgh, owing to the gravitation of incurable diseases into this hospital. The number of organic diseases to be seen here is very great. In fact, we seldom see or treat trivial disorders, such as may be found in many of our provincial hospitals.

Let me now say a word upon the *post-mortem* examinations which we have had. The whole number of fatal cases amounts to 22—9 of these occurred in Ward VI., and we had *post-mortems* in 8 of them. We had 10 examinations out of the 11 deaths, which took place in Ward XV. The two in the fever ward were not examined. We had thus examinations in all except 4 cases. This speaks well for the zeal and tact displayed by my friend and yours, our excellent resident physician, Dr Gilfillan. It has, besides, been a matter of great importance to you. The number would probably have been still increased, had it not been for an absurd regulation in this hospital. The regulations do not allow a *post-mortem* examination to be made till 48 hours after death, in an unclaimed body; and yet, immediately after 24 hours have elapsed, any one applying is allowed to remove the body at a moment's notice. It was owing to this that we missed an examination in one of our fever cases, the body having been carried off before we could obtain leave. The other 3 were positive refusals of consent on the part of the relatives.

A word now upon the fatal cases:—

We should always look back upon our fatal cases, and consider if we could, by any possibility, have cured their diseases, or prolonged their existence. This custom should be particularly attended to in private practice; it is a duty which we owe to the public, considering the great responsibilities that rest upon us. I shall now present you with a synopsis of our fatal cases. You must recollect, in relation to these numbers, how frequently it happened that more than one disease occurred in the same person. Thus, among the 22 fatal cases, there were 2 deaths from typhus fever; 8 from tubercular disease; 5 from organic disease of heart; 5 from Bright's disease of kidney; 1 from softening of the brain; 1 from cancer of liver and stomach; 1 from emphysema and bronchitis of old standing; 1 from caries of ribs, and protracted unhealthy suppuration; 1 from diabetes mellitus; 1 from splenic leuchæmia; 1 from pyæmia following erysipelas; 1 from foreign body in pharynx, followed by suppuration and pyæmia. This list shows you the large proportion of organic diseases, and the small number, comparatively, of an acute nature that have been fatal in my wards. Let us make a more close analysis of these cases.

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[1] Although scarlet fever was prevalent about the beginning of the session, none of the deaths could be attributed to it.

And, first, of the tubercular—

Three of these presented few peculiarities, and merely the ordinary appearances, of large cavities in the lungs, with ulcers in the intestines. They are, however, not devoid of interest. Thus,

Merrilees had phthisis supervening upon diabetes mellitus. This is a frequent mode of termination for diabetes.

Watt presented a good example of tubercular chronic laryngitis; he was found to have necrosis of the cartilages. This corresponded with the affection of his voice, and several other symptoms, presented during life; he had suffered a great deal from cough, and he had experienced pain on pressure over the larynx. He had aphonia nearly complete.

Many of you will remember the lad Henderson. I was personally much interested in his case. He came under my charge at the same time with another patient in whom I was equally interested, more than a year ago. These two patients were very similar in every way. They were about the same age; they presented the same complexion; they had the same colour of eyes, and the same kind of hair: they were, in fact, so like, that I sometimes mistook them for each other. Their strength was about equal, and each possessed about the same amount of flesh. If there was any perceptible difference, Henderson was perhaps the fairer of the two. They were also in much the same state as regards the condition of their health. A little disease could be detected at the apex of the lung in each, as was shown by the presence of mucous râles, and perhaps by a little dulness. They were treated in the same way, but the results were very different. They both took cod liver oil; the one that improved took it with facility, whereas he in whom the disease was advancing did not do well with it. This is often the case. Whether cod liver oil have any specific curative virtue in phthisis or not, it is certain that the capacity to assimilate it and other fattening substances, is to some extent a test of curability. Those who cannot assimilate these substances are, generally speaking, in a bad way. Henderson went out, but the disease continued to advance, and he returned two or three days before his death. The other lad continued to improve, and was soon able to fill a situation in the house. How far the comfort of his position here may have co-operated in securing this happy result, I cannot tell; he has had very fair wages, but he has also had hard work, and has frequently been a good deal exposed to cold in the course of his duty. [He has returned to the wards lately with a bronchitic attack, and he still plainly exhibits the tubercular taint.] The parents of Henderson were in rather good circumstances, and he had a comfortable home to live in. Such are some of the remarkable differences in the progress of this disease, which are at present beyond our comprehension.

We shall say a word or two upon the remaining five.

Kerr came from London, in the last stage of exhaustion, from rapidly developed phthisis; he died in a few days. The treatment we employed was, the moderate use of stimulants, and good diet. This was a case of acute tuberculosis. On *post-mortem* examination, the lungs were seen to be very voluminous, and were found to be extensively infiltrated with miliary tubercles, in small opaque masses. Cavities could scarcely be said to exist, even of the smallest size.

The physical examination in this case had been made in a very cursory way, owing to the very weak condition of the patient on his admission. We found no trace of any cavity, but we heard abundantly, in both lungs, fine crepitating râles, verging in some places to mucous. There was not much dulness on percussion, so that the disease was correctly diagnosed rather from the general symptoms than from the physical signs.

Anne Thompson presented on admission the signs of a considerable cavity in the left apex. I was inclined at first to consider that her disease was owing to the irritation of the dust, connected with her trade, viz., that of a flax dresser, and not to any hereditary transmission; she presented the signs of an apparently healthy constitution. Nevertheless her disease made rapid strides, and I frequently remarked to you that she was sinking more rapidly than any other patient in the ward. She had constant hectic fever, and severe night perspirations. One day, on stepping out of bed, she was suddenly seized with a severe pain in the side, and great dyspnœa. On physical examination, Dr Gilfillan found all the signs of pneumothorax in that side which had previously shown the fewest marks of disease. The dyspnœa increased, and she died asphyxiated on the following day. On *post-mortem* examination, it was found that fatal pneumo-thorax had occurred on the least diseased side. The fatal event was due, not to the giving way of any large cavity, the more considerable excavations being all in the other lung (and being, besides, sealed by adhesions), but to the rupture of a small excavation near the upper part of the lung.

M. R. was a long time in the wards. She was about 27 years old. She suffered repeatedly from severe paroxysms of dyspnœa; from their character, we were at first inclined to suppose that they were owing to hysteria, the more so as the paroxysms were alleviated by the usual remedies for this disease. Prior to this illness she had been of irregular habits, having in fact been a common prostitute. While under the charge of Dr Robertson, several years ago, she was being treated as a case of phthisis, when an empyema took place. Thus the left lung was quite disabled, so that respiration was entirely carried on by the right. We afterwards accounted for these paroxysms of dyspnœa, partly by the fact of there being little sound lung left, and partly by the idea that they might be complicated both by hysteria and by pericarditis, as she had the evidences of an old inflammation of the pericardium. From the persistence of the friction murmur up to death, and from the non-development of the signs of adhesion in a well marked form, I diagnosed roughness on the pericardium, but did not anticipate general adhesion. I was wrong; for *post-mortem* examination showed that there were tight adhesions all over the pericardium. This case, while it shows the dreadful tenacity with which tubercular disease often pursues its victims to the grave, also shows how much may frequently be done for such patients, when placed in favourable circumstances. When under Dr Robertson's charge, several years ago, she was in such a condition, that she could not have been expected to live many months. Nevertheless, she survived the progress of tubercular deposit, and finally perished from the severity of other organic complications. She sank from an illness extending over a series of years.

The list of tubercular diseases is terminated by two which were complicated with Bright's disease of the kidney, which will be mentioned presently.

We shall now pass to the consideration of the cardiac diseases.

The first of these I shall mention died very shortly after admission. I saw very little of him; he was found to have pulmonary hemorrhagic condensation besides the disease of the heart; and, in fact, may be said to have come into the hospital only to die.

You will remember the young man called Davidson, who died of disease of the heart; he was about the age of 21. We all took a great interest in his case. He had suffered for some time from great palpitation. The action of the heart was greatly exaggerated. You could feel the heart bounding, as it were, under the hand. There was also considerable lateral bulging over the cardiac region. The sounds of the heart were abnormally weakened. The transverse dulness was increased, and the apex of the heart beat two inches below and to the left of the nipple. We had, in fact, all the signs of well marked hypertrophy. We had, besides, a murmur both with the first and second sounds, heard loudest at the base, and also one at the apex, indicating mitral regurgitation. We diagnosed this case quite correctly as regards the heart. He perished from angina pectoris; for two days before his death he had frightful suffering. It could not be called dyspnœa, for he had no difficulty in performing the respiratory acts, and there were no physical signs of respiratory obstruction; it rather might be said to be a feeling of immediate dissolution. There was considerable resemblance, in this respect, between his case and that of Robertson, alluded to before. In this case, there was also an adherent pericardium, but there was not any unequivocal sign by which we could have discovered the affection. As usual, it gave rise to no murmur; and the other signs were those of the enlarged and dilated heart only.

Thompson and Cox had cardiac disease, complicated with disease of the kidney. The combination of these two affections is frequent, and the connection between them is not well understood. It is often difficult to tell which began first and which was the sequela. The cases in question do not add much to our knowledge on this point.

Hunter came in in extremis from Bright's disease. She died, rapidly, with severe dyspnœa.

There were two cases of retrograde tubercular disease, terminating in Bright's disease; I refer to Johnstone and Seton. The latter was a case of great importance. He came in with a diarrhœa, that had lasted several weeks; his urine was found to be albuminous, and of low specific gravity, thus clearly defining the case. The diarrhœa had already reduced the patient's strength considerably. After a trial of the pernitrate of iron, I ordered him an astringent mixture containing opium. I neglected at the moment to observe that the kidney was diseased; if I had kept this fact in view, I would have avoided, if possible, using the opium at all. After having taken this mixture for a short time, the man passed into a comatose condition; but I don't blame the opium for this, as it was discontinued the moment his altered state was observed, and as the coma went on for a much longer time than the opium would have taken to eliminate. The coma deepened, and the man died. The pathology of the case was then evident; it was one of Bright's disease of the kidney. This organ had become disabled, and led to the retention of urea. The diarrhœa was owing to the uræmia, and to some retrograde ulcers, of tubercular origin, in the intestines. We treated of this case at length in the lectures at the time.

Sarah Welch was brought in, in a state of coma from softening of the brain, and died shortly after admission.

The next case is that of Frazer, upon whom I expatiated at the time. She had cancer of the liver and stomach, and though seen under rather unfavourable circumstances (for she was only two days in the house), a correct diagnosis was formed. The *post-mortem* revealed cancer of the liver and stomach.

Leslie was admitted in a state of great prostration, from intense bronchitis complicated with emphysema; she died after being a short time in the house.

Simpson came in with a chronic abscess in the groin; I was at first inclined to consider that it was due to disease of the spine, but we found that the only bones affected were the 9th, 10th, and 11th ribs. An abscess formed in connection with the carious bone, and finally opened into the lung, when a copious expectoration of pus ensued. He sank at last under a state of system induced by the absorption of pus and other morbid materials.

The case of diabetes and tubercle was alluded to before.

There was one case of leuchæmia in my wards during the session. It was that of the old woman Harper; she was long under our observation. On *post-mortem* examination, the spleen was seen to be greatly increased in size, and firmly wedged between the pelvis and ribs. The usual appearances, of large opaque greenish yellow clots, were seen in the heart and great vessels. The white corpuscles were greatly increased in number.

I have now mentioned all the cases fatal during the period over which my remarks extend, with the exception of two, which will be spoken of in another lecture, as they belong to the series of cases of acute inflammation, on which I mean to make some remarks. You will observe that all the others were cases of extreme organic disease, and that few of them were of such a kind as to make any extended commentary necessary to prove that life could not, under the circumstances, have been prolonged. Such, then, is a great portion of the mortality of an hospital like this.

In passing from the consideration of the fatal cases, allow me to make one remark, which has a very important bearing on what remains to be said. It is this, that, out of the whole deaths, twenty-two in number, noticed in last lecture, there have been *four* only due to what can fairly be called acute disease, or, excluding the *two* deaths from fever, there have not been more than *two* deaths out of *twenty* referrible to acute inflammations. In particular, I beg your attention to the fact that, with the two exceptions presently to be noticed, inflammations of the lungs and pleuræ have not been directly or indirectly fatal in our wards in a single instance during the present session.

The exceptional instances alluded to were, both of them, cases of no ordinary interest.

The first, which occurred very early in the session, was that of a middle aged female servant, who was sent up to the fever ward under suspicion of contagious disease. When I saw her, she was in a very prostrate condition; the extremities were cold, and not only cold, but livid, almost like those of a patient in cholera; the pulse at the wrist was very feeble and rapid; the breathing oppressed, not noisy, but like a succession of deep sighs, interrupted frequently by short, dry, harassing cough; the intelligence was perfect; there was a good deal of pain, not distinctly localized; the voice was impaired, and she seemed, by the motion of her hands towards the throat, as well as by something in the character of the cough, to suffer under irritation of the larynx or upper part of the trachea. The history of the case was this: some days before admission she had swallowed a piece of fish-bone, which had, as she believed, stuck in the throat. She applied to a surgeon, who, after some efforts to remove the foreign body, believed he had dislodged it, and told her so. The acute pain which at first had pointed out the situation of the fish-bone, had disappeared, and she was quite positive that the cause of it had been removed. The present symptoms had, however, gradually arisen, and she was now evidently in the greatest danger from acute inflammation, accompanied by more than ordinary depression of the vital powers. Physical examination gave evidence, but not conclusive evidence, of double pleuro-pneumonia; that is, impaired percussion in both backs, with enfeebled respiratory murmur, and mucous râles; but nothing absolutely characteristic, unless it were a râle resembling friction, which was heard once, and once only, in the left side of the chest, and which was absent next day. The patient was, moreover, in too feeble a state to admit, either of repeated examination, or of active treatment. She died within forty-eight hours after her admission to the ward.

It was perfectly plain to me, that this case was not one of fever, but of complicated and grave thoracic inflammation. But whether that inflammation was connected with the injury from the fish-bone, or whether it was a separate and distinct disease, was not quite so plain, though the former opinion seemed probable. The *post-mortem* examination showed that the fish-bone had not been extracted, as the patient supposed. It had, on the contrary, perforated the back wall of the œsophagus, the lowest portion of the pharynx, and was found imbedded in pus, in the cellular tissue behind this part. Along nearly the whole length of the œsophagus, there was diffuse suppuration of neighbouring cellular tissue; both pleuræ contained pus; both lungs were œdematous, and contained small abscesses or sloughs, in an early stage, at their back part. Finally, the pericardium was covered by a layer of soft lymph, and contained several ounces of purulent fluid. This last lesion was not discovered during life; whether from too rapid examination, or from the greatly enfeebled action of the heart, concealing its disease, I shall not now venture to determine.

We have, in this instance, an example of several coincident inflammations, of the kind usually determined by external injuries and surgical operations, and supposed to be due to the introduction of a specific poison into the blood, in connection with the pus formed at the seat of the injury, and afterwards absorbed. Without entering further into the pathology of this matter at present, we shall call it a case of *purulent infection*, or of *pyæmic inflammation*.

Not less distinctly of the same kind was the other fatal case. The cause of the purulent infection here, however, was different.

A girl, about 20 years of age, was affected, from no obvious cause, with erysipelas of the face. In two particulars, however, the disease differed from its ordinary form in this part of the body. It was limited to one side; and it presented over the right molar bone and zygoma a diffused swelling, which rapidly tended to suppuration, and had to be freely opened, giving vent, within a few days after the first appearance of the disease, to a large quantity of very fetid pus. You may lay it down as a general rule, that erysipelas of the face, in its ordinary and manageable form, does not tend, however general, to phlegmon, but to vesication. A little pus, not unfrequently, is found, during the decline of the disease, to have formed in the lax cellular tissue of the eyelids; but even this is exceptional, and a general suppuration under the erysipelatous surface, as in this case, is of rare occurrence. I do not know whether, in this case, there was any thing specific in the nature or cause of the disease, to account for this unwelcome peculiarity. I was not without suspicion of disease of the malar bone, extending along the periosteum, and perhaps to the dura mater, for there was marked delirium, preceded by exceedingly severe pain in the head. Soon after the discharge of pus had taken place, there occurred a new train of symptoms; shiverings, repeated and severe, sickness, cold sweats, a somewhat sallow hue of the surface, a remarkably cadaverous odour of the whole body, increased delirium and prostration, finally, unconsciousness and death. This succession of events was observed between the Saturday and the Monday visit, during which interval of 48 hours, all the more threatening symptoms ran their course. It was impossible not to see, in this case, a marked instance of purulent, or perhaps rather of putrid infection; and so it was; for besides the gangrenous smell of the whole body and of the blood, we found incipient gangrenous points in both lungs, and a little putrid pus in the pleuræ. I wished to examine the seat of the primary disease, and also the brain; but we were obliged to forego this satisfaction.

I presume that no one would consider either of the cases now narrated simply as examples of thoracic inflammation; and especially of thoracic inflammation amenable to what is called antiphlogistic treatment. They were separated alike in their symptoms, their anatomical appearances, their pathological cause, from cases of simple pleuro-pneumonia, and that by a sufficiently broad line. And so in treatment; it was impossible to think, for a moment, of bleeding, of antimony, of calomel, of blisters. Internal stimulation, and external warmth, were demanded throughout, to save the sinking powers, and restore, if possible, the failing circulation. In both cases, however, the disease seemed, from an early period, to baffle all remedies; and it is further important to observe, that the rapidity of the fatal event was out of all proportion to the extent of inflammatory lesions discovered after death. In short, you have here the picture of a disease, in which the effects of a poison on the system were as distinct as they are in a case of scarlatina or small-pox; and almost as distinct as in the instance of a person bitten by a venomous reptile.

If we make deduction of these two cases of purulent infection, we have not had, during the past session, a single case of death from inflammation invading an organ previously healthy, and in a system previously undisturbed by constitutional or local disease of grave character. In particular, we have not seen a single fatal case of what is called idiopathic or simple acute inflammation of the lungs. This is not a little remarkable, considering that, in the Registrar-General's returns of mortality, pneumonia scarcely ever fails to take nearly as high a numerical position as consumption, of which disease we have had, at least, six or seven fatal cases during the session. Let us look for a moment at the probable reasons which may be assigned for this paucity of deaths, from so well-known and so large a cause of mortality in the eye of the world, and even of the medical profession, as pneumonia.

Of course, we are disposed to credit our treatment with something of this favourable result. But, before we ascribe to our treatment any *peculiar* influence, we shall do well to consider, if either the treatment or the results have been so unique as to require that we should regard them as superior to those of others. Now, you have seen the treatment adopted in these wards in a good many cases of acute disease. As a general rule, you have seen that it has not been guided by any more *special* principle, by any more recondite system of doctrine, than that of other educated physicians. We have appealed to no unvarying law—we have introduced (as it happens) no new remedy, nor re-introduced any old and forgotten one, in any of these cases of acute disease. Nor have we aimed at striking into a new path, by reposing on remote analogies and complex theories of disease or of cure. While we have received with reserve, and applied with such caution as seemed necessary, the dicta of past experience, we have in no instance thought ourselves at liberty to give an arbitrary denial to conclusions founded on the long-continued observation of disease, by multitudes of distinguished physicians. Such conclusions we have held sacred thus far, that we regard them as not to be at once overthrown by the rash speculations, crude theories, and undiscriminating experiments of a few modern physicians; but, on the contrary, to be again and again submitted to trial, in carefully selected and carefully watched cases, until the revised experience, not of one or two, but of hundreds, has corrected or adopted them. In a word, in dealing with acute and well-marked forms of disease, we have considered ourselves as acting under a grave responsibility to society and to our profession; wherefore we have scarce done anything that has not been done hundreds of times before, or omitted anything that has not been omitted hundreds of times before, on the very same grounds on which these things have been done, or omitted, by us. Our treatment has, we trust, been safe, judicious, and successful; but it has not, in the cases in question, been peculiar or novel.

Within the limits, however, which we have prescribed to ourselves, there is ample scope for all kinds of treatment—good, bad, and indifferent. Have we been, then, so much more successful, or so much more lucky than our neighbours, as to be able to draw any inferences favourable in any extraordinary degree to ourselves? I shall answer this question by again appealing to Dr Haldane's records, and, to avoid any invidious comparisons, I shall give you the results, not of any one physician's practice, but of the whole medical practice of the house in that "princeps morborum acutorum" —pleuro-pneumonia. Not counting cases in which this disease supervened upon chronic (mostly tubercular) organic chest disease, I find four cases only in the medical department of this large hospital which have been examined after death, since November. One of these was a case of pleuro-pneumonia, *with*, and probably *from*, chronic disease of the kidney; another was a case, apparently of neglected measles, admitted almost *in extremis;* a third was a case of double pleurisy after scarlatina, with suppuration of the cellular tissue of the neck; and the fourth was an instance of severe pneumonia of the left side, in a man aged forty, not otherwise much diseased, but having a fatty liver. Of all these, the last alone, and it doubtfully (for I do not know the full circumstances),[1] has a right to be admitted into the list of cases of idiopathic acute pneumonia, amenable to active treatment.

It results, then, from this inquiry, that in one of the largest hospitals in Britain, into which the sick poor are admitted with scarcely any restriction, and on no other plea save poverty and urgent sickness; an institution in which there is a higher rate of mortality, and therefore, probably, a greater pressure of severe disease than in most others, there has been during four winter months (during which it must be granted there was, on the whole, mild weather, and little epidemic sickness), only one recorded fatal event from primary, idiopathic, or well-marked sthenic pneumonia, that is, from pneumonia amenable, as such, to the ordinary modes of treatment in this disease. Is not such a fact a convincing proof that pneumonia of the type alluded to, and especially uncomplicated pneumonia, is in Edinburgh and the neighbourhood, and at the present time, an exceedingly rare cause of death, under moderately good treatment. For, recollect, the treatment pursued in an infirmary is, necessarily, worse, other things being equal, than that of private practice in the better and middle classes of society. We see our cases later in the disease, we receive them under less favourable circumstances, we treat them with less attention to individual comfort, perhaps with less special care, certainly with less of personal sympathy, than our patients in our own rank of life or near it. Further, the cases themselves are often selected cases, and selected on account of their severity and urgency. I say, therefore, without hesitation, that making every allowance for the differences between hospitals and private practice, and for the large number of cases of organic disease, which are daily drafted into our wards from all Scotland, contributing so greatly to raise our mortality, that the very small number of fatal cases of simple pneumonia shows the eminently curable character of that disease apart from epidemic or other disturbing causes.

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[1] *Note by Mr Spasshatt.*—I think I remember this latter case. It occurred at the very commencement of the session, in Ward No. vii., under Dr Keiller's care, of whose wards I at that time had charge.

The patient had for some time previously lived in the constant and habitual abuse of alcoholic stimulants. He had been ill some four or six days before admission. The history of the attack was one of pleuro-pneumonia, but, occurring in a constitution much weakened and depraved, the fever assumed a very adynamic type. On admission, he was almost in a state of collapse: countenance pallid, shrunk, and anxious—surface of the body cold—occasional rigors—pulse scarcely perceptible at the wrist, and perceptible at all, only for a short time when it was very rapid—heart sounds almost, if not entirely inaudible—breathing very hurried—exhaustion and prostration almost complete—sputum bloody—percussion over two lower thirds of left back dull—respiratory murmurs in the same situation inaudible, except towards the upper third, when crepitation was faintly perceptible—both light and strong percussion over anterior of left chest, very resonant (most likely from the stomach being distended). Patient was also suffering from diarrhœa. He was placed on a stimulating plan of treatment; but, in the course of about twenty-four hours, he succumbed from pure exhaustion.

Post-mortem examination entirely bore out the diagnosis of pleuro-pneumonia of two lower tubes of left lung, with great preponderance of the pneumonic element. The pleuræ on this side were adherent, and the two lower thirds of the left lung presented a very beautiful specimen of pneumonic condensation just passing into pus. There was also some purulent fluid in the pericardium, with some slight deposit of unhealthy lymph on the visceral portion.

I learned that, before coming into the hospital, he had been treated rigidly antiphlogistically, not by blood-letting, but other agents, viz., ant. tart., in full doses, etc.

But you will remind me, and justly, that the Registrar-General's tables, to which I referred a moment ago, show a very different result. True; but there are many reasons why these returns should not be accepted as the correct exponents of the state of this question. I will mention only a few. These returns are so framed as to exhibit in each case only one cause of death. Now, a very large proportion of the cases of pneumonia must have been, as indeed they are everywhere, complicated cases, often perhaps less of acute than of chronic disease. Thus, pneumonia is a convenient synonym for cases of phthisis, which terminate acutely and with fever; as also for many cases of Bright's disease, of disease of the heart, etc. The affection of the lung is plain and unmistakeable; the chronic disease is often overlooked; besides, the feelings and the interests of the relatives are often consulted in singling out the acute disease for mention, instead of the other. Besides all this, there is a great deal of really faulty diagnosis involved in the matter.

I have no time to go into the wider considerations connected with possible or probable changes of type of pneumonia; but I think these facts justify us in concluding that *the acute diseases of the chest, as we see them at present, are, if uncomplicated and skilfully treated, rarely fatal.* I will go farther, and say, that although a large majority of the cases met with in practice are complicated, I am convinced that pneumonia, pleurisy, or pericarditis, in such cases, will usually end favourably, provided that the primary disease be such as to afford a reasonable prospect of recovery; and this, I do not say independently of treatment, but independently of any *special element* in the treatment applicable to the whole or the majority of the cases.

In illustration of this position, I shall adduce only a few examples from the list of our successful cases; and they shall all of them be cases where the thoracic inflammation was prominent and severe; so much so as, when combined with other disease, to mask, and sometimes to destroy, the symptoms of that disease, and leave us in doubt as to its existence. The number of cases of pleuro-pneumonia of this prominent kind has been, as nearly as I can calculate, 7; but this takes no count of those minor forms of disease in which certain of the physical signs or symptoms of pneumonia have existed, while the whole physiognomy and general character of the case was opposed to that view, or indeed to the view of any serious disease. Only the other day I showed some of you a man lying ill of dysentery, or at least of obstinate diarrhœa, in Ward No. VI, in whom well-marked physical signs—viz., crepitation and dull percussion—existed at the base of the left lung, without a single pulmonary symptom requiring treatment. Much more frequently such signs, or signs not very dissimilar, co-exist, with one or two trifling symptoms in fever, in catarrh, in acute diseases generally, and in not a few chronic diseases: the great majority, of course, of such patients recovering without, or in spite of, special active treatment addressed to the lung. Such cases I never call pneumonia, though sometimes it happens that they are pathologically allied to it, while on other occasions they are very different. I mention one such instance, in which the physical signs alluded to were discovered; but it was mere accident which led to the discovery in this case, and it is probable that there have been a great many more which have been overlooked, and which indeed could only have been discovered and noted in the course of a promiscuous search after stethoscopic curiosities; a search which, I confess, I never think it advisable to make; and which would be very inconsistent with the higher duties of the physician.

Again, there are many cases of disease possessing something in common with pneumonia, but in which the symptoms of that disease, and even its physical signs, are lost in those of more complex disorder of the chest, or of the system. Such is very often the case in tubercular disease, in which, as you know, what is called intercurrent pneumonia often takes place, with characters very different from the genuine acute disease. Such is, also, the case in the pneumonia of purulent infection.

It follows, then, that any attempt to estimate numerically our entire experience of pneumonia, is subject to grave causes of fallacy. I do not, therefore, make that attempt; and I advise you, when it is made by others, to remember that they are subject to the same sources of fallacy as we should be, were we to throw into apparently precise numerical formulæ, the necessarily uncertain data which are afforded by the experience of this session. We might, in fact, magnify or diminish the field of acute inflammation to an extent almost unlimited, according as we looked at it through the large or the small end of our theoretical telescope.

The first two cases I shall mention, occurred in Ward XV., in the early part of the session, in the persons of two women, Clelland and Simpson, whose cases were dwelt upon at much length at the time. They were cases which might be fairly styled acute pleuro-pneumonia. They both commenced with marked inflammatory fever—the expectoration, scanty at first, became profuse afterwards—in one case bloody on admission, in the other becoming so whilst under treatment; in one there was acute pain in the right side, in the other in the left, and simultaneously with the pain, the ordinary physical signs were present, viz., dulness over the whole lower third in one, and two thirds in the other. We never doubted that there was pleuro-pneumonia in both cases, but their former history led us to suppose that this affection had in both supervened on former, possibly latent, tubercular disease. I told you at the time, that this did not necessarily remove them from the category of acute pleuro-pneumonia, although it modified our prognosis, and, possibly, our treatment. I also told you, that I should not be surprised if one or both of them should make good recoveries, notwithstanding the presumed tubercular complication. They had both advanced some steps in the disease before admission. In one, exudation had taken place, fever had subsided, acute symptoms had diminished. The other was not quite so far advanced, but sufficiently far to preclude bloodletting (which, to be of service in such cases, should be in a very early stage of the disease). Tartar emetic, however, was used in both. In one, Clelland, it was continued without any accident, and apparently with good effect for some time. In the other, it determined diarrhœa, and we then immediately refrained from its exhibition. Both were treated on the same principles; but, in both of them, the operation of the remedies was carefully watched, and made, as it were, a test of the character of the disease. Accordingly, we found, that in Simpson's case, we could not push the ordinary active treatment; and, in this case, it afterwards proved certain that the tubercular taint was well marked; the cure was very imperfect and lingering; dulness still remained on her leaving the hospital, and there was a strong suspicion, from existence of cracked-pot sound, and something very like cavernous râle at left apex, that the tubercle there was considerably advanced.

In connection with these cases, it is very interesting to look back on that of the man in Ward VI., Alexander Bathgate, who, on admission, presented obvious signs of acute pneumonia of three weeks' standing, of the whole upper lobe of the right lung. He suffered from intense hectic fever. His history pointed to very acute pain and fever at the beginning of the attack. From the implication of the apex, the character of the disease, the prostration and nervous disturbance, we were disposed to augur badly, and there was an extremely strong probability of the disease being one of acute infiltrated tubercle, and not of pneumonia. On the symptoms alone, however, we adopted active antiphlogistic measures; not bloodletting, but tartar-emetic in full doses; watching carefully, however, in order to diminish or omit it if found to produce any bad result, as it did in Simpson's case. We also gave him occasional opiates at night, in pretty large doses. This treatment acted admirably well, the hectic diminished, the patient got better from day to day, and from hour to hour, and after a week prognosis became more favourable, though not entirely satisfactory, even up to the last moment. It is still a question whether or not there was a little nucleus of tubercular deposit at the apex.

A case almost similar, but not so severe, was that of Catharine M'Kerricher, a young girl of sixteen years of age, suffering from acute pleuro-pneumonia of the left apex, in this case certainly conjoined with tubercular disease. There was no tartar-emetic given in this case, but only simple cough mixtures; there was a gradual resolution of the pneumonia, but the tubercular taint remained.

There were two cases, one of pleuro-pneumonia, and the other of broncho-pneumonia, which were admitted and cured in a single week under equally simple treatment.

Finally, you will recollect the case of *Mary Ross*, a young florid healthy girl, admitted on the third day of the disease. She had all the symptoms, well marked, of acute pleurisy of the right side, attended with grave inflammatory fever; two lower thirds of right back were dull. The extreme antiphlogistic measures were adopted in this case. Bloodletting was had recourse to from the arm, and tartar-emetic was given, and with the best possible results. There was speedily a great amendment, and the resolution was extraordinarily rapid. We had no reason to regret having used the lancet in this case, on the contrary, all that has been said with regard to the benefit of bloodletting in acute inflammatory fever attacking robust individuals, was fully borne out; the reduction of the fever and the other symptoms within a few hours, having been such as was not observed in any other case during the session. She was dismissed in five weeks, perfectly well, but the cure dated much farther back than this, for there having been no great pressure on the wards this winter, we have kept acute cases a long time after convalescence, in order to assure ourselves of their recovery, and to give them every possible chance.

These are the results which have been observed from the system of treatment which we have adopted. That treatment, as stated before, has not been founded on any single principle or method, but has been, in accordance with general experience, and, I think, with common sense; at all events, its results have been such as have left us no room to doubt the propriety of continuing to be guided, generally, by the same rules.

In treatment, there are two lessons to be learned. It is important to know what to do, and when to do it, but it is also important to know when to refrain. Again and again, after giving tartar-emetic, you have had occasion to observe, during the session, that it has been stopped, just when you might have supposed it was doing most good, viz., when the fever was subsiding rapidly under its use. But it was stopped in these cases because it was no longer needed; we had helped the patient over the critical part of the disease, and this having been done, we have always, with perfect confidence, left the rest of the cure to the efforts of nature. But this should not lead you to inert practice; and I beg you to remark, that we have had no reason to repent of the use of active measures; indeed, we have run through nearly the whole gamut of the orthodox remedies, and found that every one, in its own proper time and place, has been productive of good.

Article II.—*Notes on the Surgery of the War.* By George H. B. Macleod, M.D., M.R.C.S.E., and Lict. Fac., Physicians and Surgeons, Glasgow. Surgeon to the Civil Hospital at Smyrna, serving on the Staff of the Army in the Crimea, and attached as Surgeon to the General Hospital in Camp.

A great war is always an important epoch in the history of surgery. It is the crucible in which theories are tested by actual practice, and which supplies a larger number of cases within a limited period, than can be obtained in many years of the practice of civil life. Thus it was, that the Peninsular war advanced the art of surgery more than a century of civil practice would have accomplished; and the subsequent peace has done little more than give time to confirm the principles then laid down, and lead them forward to their full development. During the long peace which preceded the breaking out of this contest, mind and inventive talent have been active, and this war began with the knowledge of well established principles, with greatly improved mechanical appliances, with the fields of observation and diagnosis immensely widened by the microscope and stethoscope, and with the inestimable benefits of chloroform fully appreciated and known.

It is, I have no hesitation in saying, a very great loss to the advancement of surgery, that this war has so soon come to a close. We were just beginning to forge ahead of the difficulties which beset its commencement, and a new era, during which much might have been accomplished, was beginning to dawn. As it is, little has, I fear, been added to the lessons taught by the experience of former wars. The contest began with but few preparations made, by which much accurate knowledge could be gleaned. There were few medical men educated in the accidents of the field. The hospitals were unorganised, the soldiers little inured to active warfare; and the medical men, no less than their patients, were early submitted to such hardships as to put the careful observation of disease, or the attempt to improve practice, quite out of the question. Then the struggle has just come to an end, when, with a greatly improved organisation, an active and experienced staff, hospitals of most undeniable excellence, patients in improved physical condition, and employment in prospect much more conducive to the success of treatment, very great improvement might have been reasonably expected.

In the following papers, I propose to refer to various points in the history of the past war, which may be interesting; and to record some cases illustrating important subjects on surgery. The total absence of books makes a comparison of the statistics of former wars, or a reference to the opinions of others, beyond my power.

In this contribution, I will glance at some of the leading characteristics of military surgery, as well as at some points in which the medical history of the past war has been peculiar. A consideration of some of the peculiarities of gunshot wounds, of the hæmorrhage which follows these injuries, of chloroform as employed in the field, and of tetanus, will complete this paper.

That what is commonly termed military surgery, does not differ from the surgery of civil life, is not altogether true. There are some broad features of distinction between them, which soon impress themselves on the mind. John Bell said, "There is a peculiarity but no mystery in gunshot wounds," and it is in this "peculiarity" that the difference lies.

The soldier, as a patient, is unlike the civilian in many points. In some things he may be said to be a better patient, and in many he is decidedly a worse. Some of these points of distinction should always be borne in mind in estimating the comparative success of surgery as practised in the case of the one or of the other.

In the soldier's favour, we have physically, his being generally in the prime of life, and in robust health. Morally, his receiving the wound which brings him under treatment in the discharge of his duty; his "honourable scars" recognise none of those causes referrible to misconduct, which so frequently make the civilian the inmate of an hospital. He has, moreover, no fear, like the civilian, for the future, if incapacitated for further employment, as he knows his country will provide for him, and look on him with gratitude. So far the soldier has the advantage; but then, in general, how irregular and debauched is his life, and how apt to occasion that "debility of excess," which conceals a constitution weak to resist injury, under an outward appearance of strength and vigour. The injuries which befall the soldier, are, in general, equal in severity to the most appaling of those which come under treatment in civil life. The massive roundshot, or ponderous shell, cuts the body in sunder, like the wheel of a railway carriage, or the complicated intricacies of machinery; and thus it is, that as machinery accidents become more common, domestic surgery will become, to a great extent, assimilated to that of the field. The ample space, established routine, careful nursing, and endless appliances of a civil hospital, contrast strongly with the temporary nature, hurried extemporized inventions, and incomplete arrangements which the character of a military establishment in the field almost necessarily entails. The influx too, of patients from the front, or the shifting of the army, makes the removal of the sick in military hospitals to the rear a matter of necessity, and thus, injuries which might have been recovered from in a stationary hospital, have often to be relieved by amputation; and the treatment of wounds is frequently most grievously interfered with, not merely on account of such removal, but especially as it has to be but too often effected by means ill adapted for the purpose, jolting ambulance waggons, or ill ventilated ships.

The soldier, too, when seriously injured, has in most cases to be sent away from his comrades, his only friends, among strangers, and far removed from relations, suffers those depressing influences which a sickbed, in a foreign land, is but too apt to entail, and the power of which, in retarding cure is, I fear, not sufficiently appreciated. Nowhere do hospital gangrene, sloughing sores, and erysipelas appear so rapidly, spread so fearfully, or prove so fatal, as in the hospitals of an active army. Often too, though undeveloped, their pernicious influence broods over the camp, and touches with a poisoned finger, every wound, however trivial.

Operations performed in the field lose much of the formality which surrounds them at home, and require frequently very much more ingenuity. All dissecting-room ideas must be abandoned, and a flap taken here or there as it can be had. Nowhere has one such frequent examples of the truth of the saying, that "a good anatomist may operate in any way." True it is that the ball often performs half the dissection, but then it is done with such eccentricity, that more ingenuity is required to complete the performance, than if the part had never been interfered with.

But, besides these self-evident distinctions between the surgery of the field and the surgery of civil life, there are several circumstances in the history of the past war which are peculiar to itself, and have an important bearing on the surgical results which have followed. At the outset of the war, the troops were exposed to sources of disease, which have been most prolific causes of diseases almost ever since. The cholera, intermittent and typhoid fevers, which decimated the ranks in Bulgaria, impressed on the constitution of the survivors a taint which they seem never to have shaken off. For a time, without tents, and exposed to the most inclement weather, they were early engaged in arduous duties after their arrival on the plateau of Balaklava. Insufficient clothing, bad food, indifferent shelter, and overwork soon had their effect, and those who did not immediately sink, imbibed the seeds of a scorbutus so virulent, that in the symptoms of it, we read again the descriptions of the early navigators, or the masterly delineations of Lind.

Dysentery carried off its tale of men, and the depression of mind necessarily resulting from all these causes combined, completed a prostration of the vital powers, which were totally incapable of reacting under injury, or after a severe operation.[1]

The anaemic condition of the men during the winter of 1854-5, and the spring of the latter year, soon forced itself on the attention, and the impossibility of getting their blood-making powers to supply the want, was exceedingly striking. No treatment, dietetic or medicinal, had any effect. As the natural result, the least hæmorrhage or the most trivial suppuration, completely prostrated their strength. Wasting fluxes occurring in the course of treatment and defying cure, hæmorrhage, ununited fractures, sores unaccountably slow to heal, were the outward indications of the pernicious scurvy poison with which their systems were saturated, and which pervaded and cast its malignant influence over every injury and operation. It is a most instructive fact, connected with the medical history of this war, that the vast majority of the men in the Crimea during the winter of 1854–5, were found, after death, to have had either ulceration of the intestines, or disease of the lungs or kidneys, and not unfrequently they presented all three combined. Men cut off suddenly, as by an accident, in the apparent possession of full vigour, have been thus found to be in reality in a state of disease, which was ready to break out whenever any severe injury or operation made an extra demand on the powers of life. During life too, an unaccountable feeling of weakness was frequently complained of by men whose appearance little betokened any ailment. The recruits who joined the army last summer, were almost entirely raw, ill conditioned boys, who, when they received an injury, had little if any stamina to withstand its effects. Besides this, the regiments which have suffered most in the various assaults, and who have consequently contributed the greater number of operative cases, had either just returned from prolonged service in India, or had been made up to their strength by draughts from other regiments which had. Men so circumstanced were but ill calculated to undergo, with impunity, the rigors of winter, and the hard work of the trenches, or yet the trying ordeal of a capital operation. Seldom too, are the effects of such extremes of temperature seen in an army so stationary as ours has been, as have manifested themselves in the

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[1] I avoid describing the many hardships undergone by the troops during the winter of 1854–5, or the nature of the accommodation provided for the sick in the field hospitals, as these subjects have been fully elucidated by the published Reports sent in by Dr Cumming's commission, and that of which Sir John M'Neill and Col. Tulloch were members.

Crimea. The frost-bites of an almost Arctic winter, and the "Coup de soleil" of a tropical summer, marked the extremes of a thermometric range from minus 5° to 100° Fahr. But there is yet an element which must enter into the calculation, of much more weight, I firmly believe, than any of the foregoing. I refer to the deadly character of the contest in which we have been engaged, and the new species of fire-arms and missiles which have been employed during these campaigns. A siege differs much in the wounds it gives rise to, and the proportion of deaths which will, in all probability, follow these wounds, from a campaign carried on in the open field. In a siege, months are past during which the troops are constantly under the fire of cannon of the heaviest calibre, and shells more destructive than even round shot. Frequent sorties, on the gigantic scale we have had, here produce effects little inferior to a general engagement, while the health of the men is not kept up to that high standard which enables them to undergo active treatment when in hospital, and to which it is usually upheld when they enjoy the excitement and novelty of a moving campaign in the field.

During a campaign in "the open," a few general engagements, and the casualties of outpost service, make up the accidents of a year; but in a siege, so severe as this has been, day after day keeps up a drain, which is much more exhausting in its ultimate results. In this siege, moreover, sea-service guns of formerly unknown size and range, have been used, and shells have been employed, whose fragments are of equal dimensions with the whole projectile as known to our forefathers. Grape weighty almost as the round shot used in the Peninsular battles, have swept our trenches at the closest range, and the nature of the contest has constantly exposed our men, at the utmost disadvantage, to its deadly discharge. But it is to the new rifle and its conical ball, that the chief source of destruction is, I feel convinced, referrible. The greater precision of aim, the almost fabulous range and force which the Minie rifle possesses, and the wedge-like shape of its ball, give to gunshot wounds altogether a new character, and one which, as will be subsequently pointed out, very materially affects their direct results and ultimate bearing. Greatly increased comminution of bone is their chief characteristic; increased laceration of the soft parts, though often present, depending on the range at which the ball is fired, if short and the part struck is fleshy, the laceration seems less—if at long range, and the part on which it impinges be little covered with soft parts, the tearing which follows is greatly more than if the accident had been caused by the old round ball. This comminution of the bone often prevents reunion, and the consequent amputations required are to be performed very much nearer the trunk than they otherwise would, and thus the danger to life is woefully multiplied. These points will, however, call for more particular notice subsequently.

Further, at many of what may be termed the leading surgical epochs of the war, special circumstances have influenced the results.

After the Alma, the wounded were conveyed in the most injurious manner to hospitals, deficient in accommodation and wanting in proper arrangement, and many died as a necessary consequence. The wretched state of the roads, of the field conveyances, and of the ships, must have caused the death of many after the battle of Inkerman, who had to undergo the severe trial of a winter's voyage across a sea in which storms are proverbially frequent and severe. The assault in June was made during the prevalence of an almost tropical heat, which caused the atmosphere of our hospitals to become pernicious, and an outbreak of hospital gangrene, less fully developed, but even more deadly, than that which had manifested itself at Scutari the winter before, soon took place. Cholera too, then began its ravages; and though it did not gain any great head, still, to use the words of Sir Charles Bell, "the epidemic was recognizable in the retardation of cure."

To estimate the value of the statistics of the war aright, the foregoing facts must be given their due consideration and weight.

When this war began, the most Utopian ideas were rife of the results. Chloroform, improved apparatus, increased knowledge, better organisation, the substitution of resections for amputations, and above all, faith in the merits of the "Chirurgie Expectante" were to achieve unheard of wonders. Nearly all mutilations were to disappear, and limbs were to be patched up, lost parts supplied, and cures effected, never dreamt of in the philosophy of the older surgeons. But, unfortunately, the resulting facts are very far from fulfilling such bright anticipations, and I am convinced that the very desire to bring about the improved state of things longed for, has indirectly been one great cause of the enhanced mortality. Former results were in a great measure ignored, the experience of the Peninsular war, in too many cases, put aside, and attempts were made to preserve limbs, which that experience condemned, and the error was not recognized till it was too late to perform that operation, which if undertaken at an earlier period, might have been the means of saving life. Professing the utmost admiration for conservatism in surgery, I doubt whether the universal adherence to it, which characterised the actions of nearly all at the beginning of this war, was not fraught with more harm than good. It is certainly very humiliating to professional pride, to think that a fracture rendered compound by the presence of so small a wound, or a knee joint apparently so little injured, must inevitably lead to amputation, "former experience has said so, but now things are changed," and thus from day to day one is apt to be led on till the time for operation is past, and death most surely is the result.

Of the "peculiarities" of gunshot wounds, none strikes one earlier than the results which flow from the fact, that their being essentially of a contused character, their tract must suppurate before it closes. Superficial wounds through muscles, sometimes, though rarely, form exceptions, as they have been seen to adhere by the first intention. Thus I have seen one case, in which a superficial wound of the belly of the gastrocnemius by a ball, was said to have healed by the fifth day. The separation of the sloughs from the tract of a ball, have, in the cases I have had under my charge, taken place at different periods between the sixth and twenty-seventh days, according to the depths of the parts traversed. This separation gives rise to another feature in these wounds, the occurrence of secondary hæmorrhage, as well as the fact, that if the orifices of the tract become clean and adhere while suppuration is going on within, most troublesome accumulations of pus and burrowing abscesses will result. The greater contusion at the orifice of entrance causes it, in general, though by no means universally, to be longer of taking on the adhesive process than the orifice of exit.

The eccentric course often pursued by balls, has frequently been remarked upon in former wars, and though we have had many most striking instances of this peculiarity, still I suspect we have had less of it than occurred in the experience of former campaigns. The Minie ball is seldom content to dally with a limb, or run round a cavity. Its force, on the contrary, suffices not only to carry it through any of the great cavities, but has been seen to lodge in the body of a third man, after perforating that of his two front rank comrades. The old ball is still sometimes used, and most curious is its occasional wandering. Thus I have known it enter above the elbow, and be cut out from the posterior wall of the axilla of the opposite side, while in another instance it entered the right hip, and was found embedded in the left popliteal space. This circumstance often makes the search for balls exceedingly difficult, more particularly as the feelings of the patient frequently give one but little assistance. That such a search should be instituted at the very earliest possible moment before inflammation and swelling have come on, is a most imperative maxim; and unless greater injury be inflicted by its removal than is likely to follow its retention, the necessity of extracting the ball and all foreign matters, it may have introduced along with it, is of the utmost importance, both immediately and remotely. Two instances may be mentioned as illustrating the necessity for an early and careful search—though such an obvious point hardly requires elucidation. One case occurred to myself. A soldier, wounded on the 18th of June, was brought under my care in the General Hospital in camp. He had sustained a compound fracture of the right arm, which was much swollen on admission. I was told, and accepted the story, that the accident had been caused by a piece of shell, to which species of injury the wound bore every resemblance, and that a surgeon who had seen him in one of the trenches, had removed it. At the earnest solicitation of the patient, I contented myself with applying the necessary apparatus to try and save the limb, without minutely examining the wound. The injury turned out to have been much masked and to be more severe than was at first supposed—the shaft of the humerus having been split into the capsule—and when removing the limb at the shoulder, some days after, a large grape shot dropped out from among the muscles. I once saw a piece of shell weighing nearly 3 lbs., extracted from the hip of a man at Scutari, after the battle of the Alma, which had been overlooked for a couple of months, and to which a very small sinus alone led. This latter case too illustrates another curious circumstance in gunshot wounds, viz., the way in which the elasticity of the soft parts often permits bodies to pass in behind, which they close, so as to make it a matter of wonder how such masses could have got admission.

The sensation caused by a ball striking a limb appears to be of the most trivial and transient nature, and is commonly likened to a smart blow from a cane. If a cavity be entered, the collapse and mental trepidation are often, however, very appalling.

Shell wounds are more destructive to the soft textures than those caused by rifle balls, being frequently followed by widespread sloughing; but the hard parts often suffer less. The bone may be fractured, but it is frequently not much comminuted. The shell falling vertically, gives rise sometimes to most wonderful escapes.

The constitutional fever which follows gunshot wounds is, in general, proportioned to the importance of the part implicated, though most curious exceptions to this not unfrequently arise. That old soldiers, if sober, are much less affected by this constitutional disturbance than others, is, I think, very observable. The mitigation of this, and of the local inflammation, the prevention of all accumulations of matter, by the making of judicious dependent openings, the relaxation of severed muscular fibres, the application of light unirritating dressings, rest, and attention to the general principles of surgery, comprise all the treatment which gunshot wounds usually demand. In the profuse suppurations which so often follow these injuries, the use of cod liver oil has been markedly advantageous. The extreme simplicity of the appliances and dressing employed during this war, and the nearly total absence of poultices and such like "cover-sluts," would, I think, merit the approbation of even Mr Guthrie. The era when the "Oleum catellorum" and the tenting of wounds was in vogue, has entirely passed away for ever; and, though wonderous virtues are ascribed to water, it is not on account of any "magical or unchristian" power which it is supposed to possess. Water dressing and the lightest possible bandaging is in universal repute in this army, though not seemingly so popular with our allies the French, with whom grease, divers coloured washes, heavy pledgets of charpie and much cloth, still hold their place. There is, however, one application to profusely suppurating wounds, which I have seen the French employ with more manifest advantage than many of the astringents we use, viz., a solution composed of the perchloride of iron in the proportion of one to three of water.

Splints, too, of the simplest pattern are now employed, and the straight position universally preferred in the treatment of fractures. Bandaging is reduced to the fulfilment of the most necessary essentials, and all complications studiously avoided. Endless rollers, multiplied splints, and various contrivances are still too often seen in the French ambulances. Stiff bandages have been but little used by us, though one felt much tempted to apply them after their recorded success in the Schleswic-Holstein war. The "appareil amovo-inamovible" is said to be popular with our enemies, and an illustrated book on its employment, published in 1851, for the use of the army, was found by a friend who was with me in the hospital library of Fort Kinburn.

The long believed and much feared effects of the wind of balls, has so completely passed away into the mythology of surgery, that if it were not that one of my own wards, at this moment, contains two most excellent instances proving its utter nonsense, I would not at all refer to it. The haversack of one man was struck by a round shot on the 8th September, and though his back was slightly discoloured, he was not knocked down; and the other suffered a trivial abrasion of the thigh by a like cause. I had lately two under my notice—a sergeant who was struck on the chin by a 9 lb. ball, and though it fractured his jaw severely, in no way affected his brain; and another soldier had a piece of flesh, about the size of the fist, cleanly nipped out of his hip in the same way.

Chloroform.—The remarks made at the outset of the war by Dr Hall, the Inspector-General, on the use of chloroform in gunshot wounds, gave rise to much discussion and division of opinion. I have reason to know that he himself did not mean them, as was at the time supposed, as a prohibition of its use, but simply as a caution against its careless and indiscriminate employment. When I first joined the army, I found many surgeons of large experience, opposed to the use of chloroform in severe cases of gunshot injury, and not a few disagreeable and even fatal results were ascribed to its employment. The French, too, seemed shy of it, and I have heard some of them hint at its being a fruitful source of secondary hæmorrhage. Now, however, that the same familiarity with its use and mode of administration which is had in civil practice, is possessed, all such prejudices and misconceptions have passed away, and in place of its being looked upon as depressing the powers of life, it is gratefully acknowledged, as not only husbanding the waning strength, but as assuaging, as with the gentleness of sleep, the agonizing pains which so often follow the dreadful injuries received in military life—prolonged examinations in parts morbidly sensitive, and operations of the most trying kind, being undergone without causing pain to the patient or hurry or embarrassment to the surgeon. I have yet to learn that there is any peculiarity in gunshot wounds which renders the use of chloroform not as admissible in each and all of their different phases, as it is in civil life. It is the old mistake of theorising on its action, counting drops when it is used, and employing machines for its administration. If we mix atmospheric air with the vapour, poured by the drachm or the gallon—it matters little which —on a handkerchief, and make the effects our guide in its administration, and not what part of the nervous system is supposed to be at that moment implicated, we need care little whether the limb is to be amputated on account of a gunshot wound or a machinery accident.

Hæmorrhage following gunshot wounds is not now so dreaded as it used to be, because it is known to be by no means so frequent in occurrence as it was formerly believed to be. I have heard surgeons declare that tourniquets might have been left at home, so far as any use they were of at the battles of the Alma and Inkerman, but I suspect, though cases did not often require them when seen by the medical man, that hæmorrhage is in reality the chief immediate cause of death in the case of the majority of men killed in the field. It would be a dangerous experiment to make, but withal a very interesting one, to go over a field of battle immediately after a fight, and record the apparent causes of death in each case.

The returns fail to inform us of the numbers of cases in which secondary hæmorrhage succeeded gunshot wounds in the course of this war, and though I have no figures to which I might refer in corroboration of the statement, I am inclined to think that the proportion is higher than that set down by Mr Guthrie. The period of its occurrence has appeared to range, on an average, between the fifth and the twenty-fifth day, without drawing any minute distinction, as is done by Dr John Thomson, between hæmorrhage due to sloughing, ulceration, or simply excited arterial action at different stages of the process of cure. The fifteenth day has, curiously enough, been that on which it has taken place in the vast majority of the cases of which I have retained notes. One instance, the particulars of which I failed to learn, was said to have occurred as late as the seventh week, when the wound—a gunshot wound of the thigh—was nearly cicatrized. Hæmorrhage occurring early has been almost universally treated on the principle laid down by Bell, and so well supported and elucidated by Guthrie, of tying both ends of the wounded vessel; but when the limb is much swollen, the parts infiltrated matted together and disorganised, it is all very well to say the same principles must be carried out notwithstanding the additional risk that the coats of the vessel may be diseased, but any one who has tried it a few times will know that to do so is no easy task. With a vessel like the posterior tibial, which has repeatedly bled and infiltrated the tissues of a large muscular calf, changing their appearance and matting them together, and with a large irregular wound, into which the blood from the vessel does not seem to be poured in a collected form, but to well out from a large sloughing surface, so as to afford no guide to its exact position, the undertaking is one of the most difficult that can be imagined. The rules and precepts laid down in books about passing probes from the surface towards the seat of the bleeding, the appearance assumed by the vessel, and the dissecting-room directions to find it, are all utterly useless in actual practice; and the knowledge of them is often more a hindrance than an assistance. Watchful eyes and careful cutting, are the only reliable guides.

I believe that pressure so carefully applied over a long tract of the main vessel above, as will diminish, without arresting, the stream passing through it, will, in many cases, be sufficient to allow such coagulation to take place in the open mouths of the vessels as will prevent any future annoyance—that is always supposing a very large extent of an artery be not ripped open, as it were, and as I have seen it, by a rifle ball. The French do not, seemingly, act so unreservedly on the principle of putting a ligature on both ends of a bleeding vessel, as we do. They perform Anel's operation in not a few cases. The interesting and instructive nature of the following case is evident:—A Russian boy, wounded at Inkerman, was received into the French hospital at Pera. He had sustained a compound fracture of the leg from gunshot. On the fifteenth day after injury, profuse hæmorrhage took place from both openings. Pressure failed to arrest it. The popliteal was tied the same day according to the method of deligation recommended by M. Jobert, viz., on the inner side of the limb, between the vastus and hamstring muscles. The foot remained very cold for four days, and then violent reaction set in, and on the eighth day, from the ligature of the main vessel hæmorrhage recurred both from the original wound and the incision of ligature. Pressure was tried in vain. The superficial femoral was then ligatured on the tenth day from the deligation of the popliteal. Four days afterwards the bleeding returned from the wound, and pressure then seemed to check it. The ligature separated from the femoral on the twelfth day after its being tied, and the third day after, *i.e.*, the twenty-fifth day from the first occurrence of hæmorrhage bleeding again set in from the wound, the limb was amputated in the thigh, and the unfortunate patient ultimately recovered. Would Mr Guthrie not have saved this man's limb and the surgeons much trouble? It was a matter of common conversation in the hospitals at Constantinople, that when the weather was close and sultry, with little wind, there was certain to be a large number of cases of secondary hæmorrhage.

A soldier, resting his right hand on his musket, was struck by a ball on the web between the thumb and forefinger. The wound seemed trivial, but the whole hand swelled exceedingly. On the fourteenth day arterial hæmorrhage occurred, and pressure was applied. The bleeding repeatedly recurred, and still pressure was persevered in. Finally the radial, and then the ulnar, was ligatured before the hæmorrhage was commanded. An early search in the wound, and a thread applied to the orifices of the vessel, would have saved much annoyance and risk. The following occurred under my own notice:—

M'Garthland, a soldier of the 38th regiment, an unhealthy man, who still suffered from the effects of scurvy, which had been followed by fever, was shot through the left leg from behind, and externally forwards and inwards, on the 18th of June. The fibula was broken, and the edge of the tibia was injured. He walked to the rear without assistance. On admission the limb was greatly swollen. This swelling very much diminished in a few days. On the fifth day, arterial bleeding, to a limited extent, took place from both openings. Recalling a case put on record by Mr Butcher of Dublin, of wound of the post-tibial, I determined on trying the effects of well-applied pressure along the course of the popliteal and in the wound, and employing cold, while the limb was raised and fixed on a splint. The object of the pressure on the main vessel was to diminish, not arrest, the flow of blood through it. On the eighth day there was again some oozing. Pus had accumulated among the muscles of the calf (one great objection to using pressure on the orifices of gunshot wounds), and required incision for its evacuation. On the ninth day a pulsating tumour was observed on the external aspect of the leg, and next day the bleeding returned from both wounds.

I wished then to cut down and tie the vessel in the wound, but a consultation decided on waiting a little longer, in the hope that the bleeding might not return. On the night of the eleventh day most profuse hæmorrhage recurred. The attendant, though strictly enjoined,.failed to tighten the tourniquet, but the necessary steps to arrest the bleeding were taken by the officer on duty. Next morning, when I first heard of the occurrence, I found the patient blanched, cold, and nearly pulseless. A consultation decided that the state of the parts made the securing of the vessel in the wound very problematical, and that as the limb would not recover if the main artery was taken up, amputation must be performed so soon as he had sufficiently rallied. When reaction had fairly taken place, I amputated the limb. The removed parts were much engorged, sloughed, and disorganised. The anterior tibial was found to have been opened for about an inch shortly after its origin, and on it was formed the aneurism, which had a communication with both orifices of the wound. The artery should have been tied in the wound on the occurrence of the second bleeding. I say the second bleeding, as it very often happens that even when hæmorrhage has taken place, to a considerable extent, and evidently from a vessel of large calibre, it never recurs. Many most striking instances of this have come under my notice. But though more than even this is true, and that frequently blood thrown out repeatedly is spontaneously arrested, still the great preponderance of cases in which it recurs in dangerous repetitions and quantities, as in the above instance, should cause us, I believe, to interfere on its second appearance, if it be in any quantity more particularly, and that we should not delay, so as to run the risk of such a return as will cause exhaustion. Not to interfere unless the vessel is bleeding, must not always be understood too literally, or we will often be prevented from performing a necessary operation till our patient is beyond our help. The hæmorrhage recurs over and over again, and the surgeon, though as near as is practicable, arrives only in time to see the bed drenched, and the patient and attendant intensely alarmed. There is at the moment no bleeding, and he vainly hopes there will be no return; and so on goes the game between ebbing life and approaching death, the loss not great at each time, but mighty in its sum, till all assistance is useless.

The use of acetate of lead, or gallic acid, though often trusted to in these hæmorrhages, are surgical farces—mesmeric passes along the vessels would be of infinitely more service.

There is no circumstance in gunshot wounds which is more striking, than the wonderful way in which the great vessels, by their elasticity, escape from the ball in its transit. Thus bullets innocuously traverse parts where one would suppose a pin's head could not be placed, without wounding a vessel. True, the fact that such cases remain to be seen, results from the vessel not having been opened, and we do not know in how many cases the result was not so fortunate, but still, viewed merely as happy escapes, they are curious and interesting. In the course of the femoral vessels, this phenomenon is particularly common. Through the axilla, through the neck, out and in behind the angles of the jaw, between the bones of the forearm and leg, balls of every size often take their passage without harm to the vessels. Take the following cases as examples:—A soldier was wounded at Inkerman, by a ball which entered through the right cheek and escaped behind the angle of the left jaw, so tearing the parts that the great vessels were plainly visible in the wound. Three weeks after he was discharged without having had a bad symptom. A soldier of the Buffs was struck in June last, when in the trenches, by a rifle ball, in the nape of the neck. It passed forwards round the right side of the neck, up under the angle of the inferior maxilla, fractured the superior maxillary and malar bones, destroyed the eye, and, escaping, killed another man who was sitting beside him. This man made a recovery without a bad symptom.

A French soldier at the Alma was struck obliquely by a rifle ball, near, but external to the right nipple, the ball passed seemingly right through the vessels and nerves in the axilla, and escaped behind. His cure was rapid and uninterrupted. Endless numbers of similar cases may be seen in any military hospital.

Tetanus.—The exact number of cases in which this deadly malady has followed wounds, or the nature of the injuries giving rise to it, are alike undiscoverable from the army returns. It has not, however, been by any means common. I only know of five cases in the front, but there were also some at Scutari, but I am uncertain how many. The usual proportion to wounds is, I think, one in seventy-nine, as laid down by Mr Alcock. We have certainly not had that ratio. In no case has it occurred after the twenty-first day—the limit as defined by Sir James M'Gregor. In the cases of which I have known the particulars, there was no confirmation of Baron Larrey's theory as to the set of muscles affected according to the position of the wound. The cases occurring in our army have been universally fatal. Of the five instances which appeared in front, one succeeded a compound fracture of the thigh ; one a face wound, with destruction of the eye ; one an amputation at the shoulder; and the two others, following wounds without fracture of the thigh, unfortunately happened in cases under my own charge in neighbouring wards, and within a very short time of one another, in the General Hospital in the field. I give the particulars of them from their extreme similarity to one another.

Hughes, a private in the 44th Regiment, was admitted into the hospital on the 18th of June. In the assault on the Redan, a ball had entered an inch below the anterior superior spinous process of the right ilium, and passing downwards and outwards, lodged deeply among the muscles. By a most careful and prolonged examination, its position could not be ascertained, and it was left in the hope that in a day or two it might become defined, or that it would remain altogether harmless. There was no fracture and no pain. The case was treated as a flesh wound. On the thirteenth day, he complained of pain behind the great trochanter of the right side, and the presence there of deep fluctuation, caused me to make an incision down to an accumulation of pus, which flowed out in considerable quantity, and in the sac of which collection I found the ball much flattened. I freely enlarged the wound, so that all retention of matter was avoided. Next day, some cloth was discharged from this opening. On the seventeenth day, his manner was changed. He was irritable, and complained of his wound. Pus continued to flow freely, and his general health was unimpaired. He said that he had caught cold, and "that it had taken him in the jaws," which were a little stiff. His bowels being costive, I ordered him a purge, and an embrocation for his jaws. I had not, at this time, any suspicions of the impending evil. Next day, I found that his bowels had been fully moved, and that most offensive dark coloured stools had resulted. The trismus was now very marked ; the masseters were hard and contracted, like clumps of iron. I examined the wound, and further enlarged it. A large emollient cataplasm was applied, and a drop of croton oil, given internally, relieved his bowels of much more of the same fœtid dejection he had voided formerly. In the afternoon, when rising to go to stool (which he insisted on doing), he had a violent spasm over the right side of the body, not accompanied by any pain. From this time, the spasmodic contractions set in, recurring at uncertain intervals, leaving him at times for half a day, but always returning till his death. These spasms were nearly confined to the wounded side, and affected most the muscles of the thigh. I began the use of the acetate of morphia in gr. ij doses, and afterwards diminished it to one grain, administered every hour, till he slept. This he did in snatches during the succeeding days, waking up startled if any one walked near his bed. Whenever he slept for an hour or two, his symptoms were markedly alleviated. When he slept, the opium was intermitted for some hours, and then re-begun. Only on the first day did he exhibit the slightest symptoms of narcotism, and so much relief did he experience from the use of the drug, that he earnestly asked for it whenever he was a few hours without sleep. He always denied suffering any pain; though from the way in which the corners of his mouth were drawn upwards and backwards, so as to expose his teeth, and the manner in which his brow was knit, he looked as if he was in extreme agony. There was one small spot, in no way peculiar to the eye or touch, on the inner side of the knee, and another on the ankle of the wounded limb, which he always said gave him much pain. The least pressure on these spots immediately caused the most violent spasm. He frequently expressed his astonishment at the limb starting in the way it did, and tried in vain to prevent it. His mind remained unaffected till near his death, when he became dull and heavy, like a drunken man. The muscles of the neck, the long muscles of the back, as well as the serratus magnus of the right side, and the muscles of the thigh and leg of the same side, became hard as a board, particularly during the transit of a spasm. So hard and contracted were they, that when we had occasion to move him in bed, he could be raised like a log of wood, at least so far as his right side was concerned. His abdomen became much distended, and its muscles hard. The clysters which were administered during the progress of his treatment, always gave him much relief from the feeling of "bursting," of which he so often complained. He lay diagonally across the bed, his wounded limb stretched straight out, and the other drawn up. Latterly he suffered from a severe pain, which continued to shoot from the ensiform cartilage to his spine, and also from intermitting pains in his right side. For a couple of days there was a diminution of the discharge from the wound, but ultimately it became quite re-established. His skin was always bathed in perspiration—the excretion having a most pungent and offensive smell. For some days before death, a miliary eruption showed itself over the upper part of his body. His pulse was slightly elevated during the progress of the malady, but it never reached any very high standard. His respirations varied from 26 to 28 per minute. A very viscid spit, which he was always trying to hawk up, gave him much annoyance. He had retention of urine, and latterly suppression. There was some blood mixed with his urine for a couple of days. I have already alluded to the treatment which was followed. Purgatives, opium, freely at first, combined with camphor, and latterly alone. He frequently took as much as 15 grains of opium before he slept, and altogether he must have consumed a very large quantity of that drug. He asked for fomentations to be applied to his limb, which, to the hand, appeared colder than its fellow. Their application, he said, gave him relief. His ability to swallow semi-fluid food enabled me to give him the most nutritious diet I could devise, along with wine. With intermissions and exacerbations his fatal malady progressed. A spasmodic cough was added to his other ailments. On the afternoon of the tenth day of attack, his symptoms greatly abated for some hours, and while he was conversing with a comrade, he was seized with what the orderly termed "a fit," vomited some dark matter, was severely convulsed, so that his body was drawn backwards and to the right side, and before I reached his bedside he was dead. By a mistake of the hospital sergeant, no examination was got of his body, with the exception of the wound, which I looked at shortly after death. The fascia lata was much torn and lacerated, and the parts beneath were sloughy.

Barker, a private in the 38th Regiment, æt. 20, was admitted into the General Hospital in camp on the same day as the last patient, June 18th. A ball had penetrated his left thigh, at its lower and inner aspect, and lodged. It could not be found, though every means were used. Four days afterwards it was felt near the wound, and removed. By the 28th the wound was looking sloughy, and the discharge was thin and unhealthy. He complained much more than was usual about his wound, and appeared very anxious. On the 30th, I noticed some twitching of the limb as it was being dressed. His bowels were free, but he complained of sleeping little at night. The wound was freely enlarged, and covered with a large poultice. He was purged with croton oil and clysters. The symptoms grew rapidly worse. During the two succeeding days, the spasms over the left side were very decidedly pronounced. He described them himself as proceeding in "flashes" from his wound to the spine, and back again. Touching the limb, and particularly the sole of the foot, immediately aroused the most violent spasmodic contractions. His pulse rose to 92, and his respirations to 29 per minute. He did not complain of pain, but was greatly distressed by a thick spit which clung to his teeth, and which he was always making violent attempts to expel. The left side of his body was almost alone affected, and the spasms, as in the last case, drew him diagonally backwards, and to the wounded side. He had no trismus for the first day, but afterwards it became marked. He always said that he was sure if he could only sleep he would be all right. I brought him under the influence of chloroform, and while its action continued, the spasms were relieved, and certainly the pulse and respirations were reduced in frequency, but so soon as he recovered from its effects, all his worst symptoms returned in undiminished vigour. Having seen the utter futility of chloroform to relieve the spasms permanently, or to arrest the disease, in two former cases at home, where the anæsthetic had been fairly tried, I determined to abandon it and trust to opium. This, with enemas, nourishing food, and local emollient applications, comprehended all the treatment. The symptoms were not abated, except for very short intervals, and then only in proportion as sleep was procured. His skin was always covered with an odorous perspiration. The abdomen got distended and hard. The muscles of the back were markedly hard and contracted, particularly on the left side. The left leg was stretched out spasmodically, every muscle defined. His right limb was drawn up, and he lay across the bed. The wound was sloughy, and shreds of fascia escaped with the discharge. The urine became very scanty and high coloured, and required to be drawn off with a catheter. Eventually he suffered much pain in the left groin and calf of the leg, as well as at the ensiform cartilage. When trying to raise himself on his elbow, on the fifth day of the attack, and seventeenth after admission, he was violently spasmed, so that he was bent greatly backwards, he put his hand to his throat as if choking, and fell back dead.

The wound was found to be lined with an ashy slough. The bone was not injured. The fascia lata was much torn, and was pierced and ulcerated at a spot on the anterior and external aspect of the limb, some little distance from the wound. The ball had evidently penetrated to this point. No nerve fibres could be detected near the wound. The parts in the neighbourhood were sound. The brain and internal organs were healthy. The lungs only were slightly congested, and viscid mucus was present in the larger tubes. The spinal canal contained a good deal of fluid blood. The cord and its membranes were congested. In the lower cervical and upper dorsal regions the substance of the cord was varicose—contracted and expanded into a series of knots. There was no other abdominal appearance.

On looking at these two cases in connection, the curious parallelism between them must strike one. The very distinct manner, too, in which so many of the peculiar symptoms of this deadly disease were developed, particularly in the first case, is interesting. Whether if opium, which appeared to act so beneficially, had been pushed further, so as to produce a more decided impression, would not have been better, is a question. I believe it would have affected the result but little. The similarity between the wounds in these two cases, the non-discovery of the balls for some days, the symptoms, the season of the year, and the state of the cord in the last case, were all interesting. That the high temperature we had at that period had much to do with the production of the disease, is doubtful, yet three of the five cases which occurred in front, appeared at that time. Extremes of temperature evidently act alike. Of the effects of heat in occasioning it, or predisposing to it, we have abundant proof. Dr Kane supplies us with some evidence of the influence of cold in causing it. In the recent expedition to the Arctic Sea, that gentleman relates how they suffered from lock-jaw, during a winter of extreme cold which they passed on the ice, and how they lost all their dogs by tetanus.

Of the total number of cases which have occurred in the French hospitals, I am ignorant. But of five cases with which I was familiar, and which appeared about the same period in the hospitals at Constantinople, one followed compound fracture of the thigh, three, wounds of the foot, and one, a penetrating wound of the chest in a Zouave, who, after recovery, was allowed to visit the town, where he remained drunk for three days, and was seized with tetanus on his return, and died in 48 hours. The French trust entirely to opium in its treatment, and report favourable results from its use; though, I suspect, from what I have heard, that not a few cases of simple trismus have been inadvertently classed under the more formidable disease of tetanus. If the disease is severe, it seems a matter of indifference what treatment is followed; if mild, opium has most evidence in its favour. I have lately been put in possession of the particulars of some cases which occurred in India, in which amputation was had recourse to for this disease. They ended fatally without relief; though if early performed, before the peripheral irritation has had time to set up much centric disturbance, this step would certainly appear to promise good results, in so far as the cause being removed, local applications to the spine would have more likelihood of succeeding in allaying the excited action. The re-establishment of the local discharge, if it has become dried up, can be of little advantage, as it is surely more reasonable to suppose that it is not the disappearance of the discharge which is the cause of the tetanus, but the nervous affection which gives rise to the drying up of the wound.

General Hospital, Camp before Sebastopol,
January 1856.

ARTICLE III.—*On the Efficacy of Small Doses of Morphia (as opposed to the Use of Expectorants), in the Treatment of Hooping-Cough, Chronic Bronchitis, and Phthisis.* By EDWARD SMITH, M.D., LL.B., L.R.C.P., Assistant-Physician to the Hospital for Consumption and Diseases of the Chest, Brompton, etc.

IN the following communication, I purpose to state the results of my practice in reference to the exhibition of small doses of morphia, and to indicate the pathological conditions under which the remedy has been employed. The observations have been made, during several years, both in private and in hospital practice, and have sufficed to establish a firm conviction, in my own mind, of the practical value of the remedy, and the physiological correctness of the principle adopted in its employment.

The dose to which I refer, is from the $\frac{1}{64}$ to $\frac{1}{24}$ of a grain, in an infant and young child, and from $\frac{1}{20}$ to $\frac{1}{12}$ of a grain, in an adult; and the frequency of the administration is from 3 to 6 times in the 24 hours. The class of cases in which I have used it, is such as exhibit local nervous irritability or spasm of the air-passages and adjoining structures, and in which that condition is either the essence of the disease, or an accident, which adds to the distress of the patient, and more or less prolongs the disease. The principle involved is the removal of the spasm or nervous irritability by direct means, and in such a manner, that the effect shall be very slight at first, but progressive, with the repetition of the remedy, yet never to the extent of influencing the sensorium. This is effected by commencing with a very small dose, and increasing it according to the effect, both on the disease, as showing the necessity for its continuance, and on the sensorium, as limiting its action. The effect thus produced is doubtless the same in kind as when the large dose of $\frac{1}{4}$ or $\frac{1}{3}$ of a grain is administered; but there is this great practical distinction, that, whilst the latter would, in such cases, defeat its object, by producing an effect so violent, that it could not be well borne, or be repeated often, in the former, the effect is gentle and agreeable, and may be so sustained by repetition, that the diseased condition shall be first got under control, and then entirely removed, at least for that attack. I must, therefore, beg that the effect, which I state to result from the frequent employment of the minute doses, may not be criticised by knowledge obtained from the use of the large and detached doses only.

I have not found any ill effects follow its employment in patients of the tenderest age, even of only a few weeks old; but it is manifest, that care is called for on the part of the practitioner, that the nurse may accurately ascertain the dose, and be able as accurately, and on a system, to increase it. This will imply the use of a graduated measure by the nurse, and the knowledge to use it properly. As an illustration, I may state that, when I prescribe it for infants or young children, I order 1 gr. of the salt of morphia to a 2 oz. mixture, and of this 15 miniums is the $\frac{1}{64}$th of a grain, and 30 miniums the $\frac{1}{32}$d of a grain; and, by taking the precaution to instruct the nurse in the use of the minium measure, the 64th, 48th, 38th, or 32d of a grain may be given correctly, by giving 15, 20, 25, or 30 miniums for a dose. I have never found the slightest difficulty, but I have had the most reason to be satisfied, when I have had to do with intelligent people. The same end may be attained by prescribing the remedy of any other strength, but in all cases I direct the use of a graduated measure, in preference to the indefinite quantities of teaspoonfuls. The above mentioned form is, however, the most convenient for adults, since the 16th part, or one teaspoonful, is the 16th of a grain. I have premised these details, since I have had reason to know that the success, or the want of it, has often been attributable to the careful or careless mode of administration.

It must not be supposed that, in advocating the use of this remedy, I regard it, in any wise, in the light of a specific, or that it alone will necessarily suffice for the cure of any, even the most suitable case; I regard it as an adjunct to other treatment, and consequent to such other remedies as may be required to remove any distant source of irritation, and more particularly in the bowels, stomach, and liver. Thus I consider that I am not open to the suspicion of acting empirically, however it may be questioned, as to whether the ultimate good was due to the latter rather than to the former measures.

There are three diseases in which I have constantly employed the morphia, viz., hooping-cough, bronchitis (both in its ordinary chronic form, and when spasmodic with emphysema), and phthisis; and to these I shall refer in their order.

HOOPING-COUGH.

In a paper published in 1854, in the Medico-Chirurgical Transactions, I proved that the deaths from hooping-cough were commonly due to bronchitis, and that they appeared in no way related to deaths from zymotic or from nervous diseases. We cannot doubt, from the symptoms of hooping-cough, that that disease is associated with three classes of diseases, viz., pectoral, zymotic, and nervous; and although, in its deaths, it is associated chiefly with the first, it does not follow that it is so when no fatal complication exists. My observation has led me firmly to adopt the theory, that whatever may be the nature of its origin, it is essentially a nervous disease, quite distinct, in its early stages, from inflammation; and that, if it be treated as such, all that which distinguishes the cough from an ordinary cough, may be very speedily removed.

With such an opinion, I have regarded everything, whether within or without the system, which tends to debility, directly and indirectly, as increasing and maintaining the disease. Such are confined, impure, or hot air; non-nutritive or stimulating food, as well as food in large quantity; the presence of undigested food, or disordered bile in the chylopoetic viscera; constipation, and teething. The preliminary treatment, therefore, consists in due attention to the bowels, and the exhibition of small doses of gray powder once or twice a day; exposure to fresh cool air, and the exhibition of nutritive food, in very small quantities, and very frequently.

At this stage, I am aware that many remedies have been employed as tonics, and as narcotics, with advantage, and without exciting the prejudices of those who have faith in any of them, as exhibited under their own directions, I am of opinion that none are so certain, so speedy, or so harmless in their action, as small doses of morphia. The plan adopted by me, is to ascertain what precise dose may be given, without affecting the sensorium, and then that dose is continued until the improvement has been effected.

I do not think it advisable that much delay should occur in obtaining this information, and hence I direct the dose to be increased, from dose to dose, almost, until it is obtained. Thus, if I had began with the $\frac{1}{64}$th of a grain, as I should do with an infant 4 months old, I should direct it to be given every 4 hours, for 3 or 4 doses; and, if no drowsiness whatever should result, to increase the dose by 5 miniums, or to $\frac{1}{48}$ of a grain, and that to be continued for 3 or 4 more doses, and so on increasingly, until the slightest drowsiness is detected. That having been ascertained, the continuance of the dose for 2 days, or less, will have perceptibly lessened the spasm, and, within from 3 to 10 days, the cough will have been reduced entirely, or nearly so, to a common cough. In numerous cases, have found a very evident improvement on the second day, and, on the fourth, the spasm had nearly ceased. I do not think it at all necessary that the sensorium should be affected, in order to produce and to maintain the good results; but it is well that it should be so at first, as a measure of the influence of the remedy upon the nervous system. Thus the plan of treatment consists first in the removal of all irritating and exhausting action from the system, the introduction of the best sanitory conditions, and the rapid administration of small doses of morphia—the doses being rapidly increased, until the sensorium is slightly influenced, and then lessened, as the disease declines, or increased as the effect of the remedy is better borne by the nervous system.

As the effect of the remedy, in my hands, has been uniformly good, I do not think it needful to recite cases in detail.

In hospital and dispensary practice I have tried it extensively, and nearly always with satisfactory results. In this class of the community, all treatment is less valuable than in patients occupying a higher station in life, since less care can be given by them to the child, and it is much more difficult to make them comprehend the importance of following such minute directions to the letter. Disorders of the alimentary canal, from injudicious food, I have found to be the most frequent source of injury, and one which prolonged the recovery; but, upon the whole, I do not doubt the value of the treatment, even in them, provided the practitioner himself be watchful. In the early employment of the remedy, I combined it with expectorants, in the hope of thereby causing the more ready detachment of the tenacious viscid mucous, which is so constantly associated with the paroxysm; but, latterly, I have ascertained that the secretion was, in great part, due to the violence of the cough, and I thence inferred that the best treatment was simply to stop the spasmodic cough, and to avoid expectorants, which, in their action, must be stimulating to the mucous membrane, and opposed to the action of the morphia. I, therefore, now omit all reference to the secretion, and direct my sole effort to the removal of the spasmodic character of the cough, and thereby to reduce it to the harmless state of a common cough.

BRONCHITIS, CHRONIC AND SPASMODIC.

In this disease, the two great objects of distress are the cough and the dyspnœa; and the ordinary treatment has been, to excite a free secretion from the mucous membrane, in the belief that the congestion, which was supposed to cause the dyspnœa, would be directly removed, and the cough as indirectly, by the greater ease with which the secretion would be expectorated.

Now, if the essence of such an attack were inflammation, as is implied by the name still given to it, there might be some truth in the principle laid down; but it is familiar to all who see much of chest disease, that, out of the great mass of out-patients, scarcely any exhibit any tangible evidence of inflammation—not even those cases which present the greatest evidence of distress. Without, therefore, affirming that this principle is right or wrong, in cases of true inflammation, I feel assured that it is wrong, in an immense majority of the cases treated at hospitals, under the term chronic bronchitis.

To what, then, is the attack due? In addition to structural changes left by previous attacks, it is due to nervous irritation of the structures of the air-passages—of the mucous membrane causing the cough, and of the muscular fibres of the minute bronchial tubes causing the dyspnœa. To excite the cough, in such cases, under the idea of removing secretion, by the administration of stimulating expectorants, is, under this theory, to increase the spasm, and, therefore, the dyspnœa; whilst the subsidence of the cough, to a certain extent, removes one of the causes of increasing dyspnœa, and is an evidence of lessened nervous irritation. It does not, however, at all times occur that the subsidence of the cough, from proper treatment, causes or accompanies the subsidence of the dyspnœa, for I ascertain, every week, that the latter may remain, whilst the former has subsided, and the whole system has felt relief; but, in the class of cases referred to, I am of opinion that the very same treatment which, in my hands, has thus relieved the cough, will, if carried further, relieve the dyspnœa also.

In reference to the importance of obtaining an unusually free secretion in this disease, I am assured that it is unnecessary in any stage, and that it only attends improvement when, by continuance of time, the nervous irritation, which caused both the cough and the dyspnœa, has died out. How far it may be due directly to nervous irritability, I cannot tell; but I am sure that, in all cases, the tenacious, troublesome phlegm is in part due to the cough. As, therefore, the irritation decreases, the cough, and dyspnœa, and secretion will decrease also; but usually the good effect is found first in the cough, and hence it is the earliest indication, and a good measure of the improvement.

The cough is regarded as an effort of nature to get rid of irritating matters from the bronchial tubes, but it manifestly occurs in many instances without the presence of any such matters. If we bear in mind the violent succussion which occurs in the act, and the interference with respiration and pulsation, which then exists, it cannot be that at any time it is harmless. If then it be unnecessary and hurtful, it may be regarded as a disease in itself, or as an essential part in other diseases calling for its control. It is under this impression that I advocate its arrest in the disease in question, and feel assured that in arresting it, we put an end to an integral part of the disease, do no hurt by doing so, and thus prevent harm from its continuance. I am therefore disposed to banish expectorants, purely as such, from the treatment, or at least to limit their employment to narrow bounds.

It is not the purpose of this communication to open up the whole subject of the pathology of the diseases referred to, but only to state so much as may justify the plan of treatment now recommended. If, however, any thing further were desirable, I would name in support of this position, 1st, The origin of the attack in sudden atmospheric changes, not necessarily in the direction of cold, but as we have lately experienced, the sudden removal of intense cold. 2d, The rapidity of the onset and the suddenness of the subsidence in many instances. 3d, The benefits resulting from the narcotic plan of treatment; and 4th, the great diminution of vesicular murmur in various large sections of the lungs depending probably upon spasm of the muscular fibres of the bronchial tubes, and not upon effusion into the air cells. Upon these I shall not dwell.

The treatment then, which I commend in such cases is, that of the exhibition of morphia conjoined with attention to the liver and bowels, and atmospheric conditions. I never commence in an adult with more than the $\frac{1}{16}$th of a grain repeated 3 or 6 times a-day, and in most cases that dose suffices for the speedy relief of both the cough and the dyspnœa. Sometimes I increase it to the $\frac{1}{12}$th of a grain, but scarcely ever to a degree beyond that, and I believe that larger doses would fail by the disturbance which they would create in the sensorium and the action of the bowels. The $\frac{1}{16}$th of a grain most rarely gives any uncomfortable sensation, on its frequent and constant repetition, but by the lapse of time the value of its influence is commonly lessened.

The class of cases in which I have tested its value to the uttermost, are those, accompanied by dyspnœa of the most severe kind, whether permanent, or in violent paroxysms at intervals, and where, at the same time, there has been marked sensations of tightness across the chest. Where the latter has existed we have been accustomed to regard narcotics as unsuitable, by arresting the secretion, and so popular is the belief that tightness of the chest is increased by lessening the secretion, that on a few occasions over-wise patients have attributed the continuance of the former to the occurrence of the latter, and thereby had prejudiced themselves against the treatment. It cannot be denied that the tightness is commonly relieved when the secretion is increased, but it does not follow that the one depended upon the other. It is rather probable that both depended upon a common cause, by the solution of which both have been relieved. It is, however, certain that tightness is also relieved when the secretion is little, or has become less, so that there is no necessary connection between large or increasing secretion, and removal of the sense of tightness. This is a point of moment, since it must decide the plan of treatment. I have, therefore, selected several of our worst cases of chronic spasmodic bronchitis, and have marked their progress, so that I might, from time to time, note the results, and in most instances, the results have been highly satisfactory. In no case has the tightness really become greater, and in none has the treatment led to evil results. As a rule, both the cough and the breathing have been relieved together; but in many instances the dyspnœa is the last phenomenon to be influenced by it. Often-times in such cases, I have used the croton oil liniment to the chest with the best results to the patient's comfort; but the relief thus obtained, is, I believe, to be explained upon the principle now laid down, rather than upon any subsidence of supposed inflammatory action.

In summing up the benefits which I have found to flow from the treatment, by saying that they are great, I would not be understood to mean that a cure is thereby effected in these cases, or that in the most severe forms of the disease, the remedy has alone always sufficed to give the degree of relief which was desirable. I only claim for it, that in all the ordinary forms of the attack, it will give speedy relief; and when used alone, will commonly suffice to remove the attack, and that if it fail in any degree in the severest forms, it suffers no greater disgrace than falls to the lot of all remedies. It must always be borne in mind, that it is one thing for the attack to subside by exhaustion from time, with or without the use of remedies, and another for it to be cut short by the employment of this or similar agents. In both instances the disease is removed, but in the latter only is credit due to remedies.

From the remarks already made, it cannot be inferred that I employ the remedy as a palliative merely. It is true that the attacks may be renewed, but each attack may be regarded as a distinct disease, and the remedy which relieves it demands the credit due to the removal of diseases. Again, in removing the cough or the dyspnœa, it may be objected that we remove merely a symptom and thus palliate the disease, but I affirm, that in relieving them we relieve the disease, by removing not only these symptoms, but the conditions which immediately gave rise to them. If the principle of treatment be agreed upon, it is not necessarily wise to limit the treatment to the employment of a single drug, since various other remedies may be employed at the same time, which may act coordinately with this, as principal ingredients. It is not, therefore, morphia, and nothing but morphia that I commend, but it is that drug either alone or conjoined, as with vegetable bitters, or with some form of iron, according to the nature of the case. Still I am convinced that the combination with iron or bitters, very commonly lessens the influence of the morphia, in arresting the cough, and when the cough is considerable, it is well to administer the morphia, simply dissolved in camphor water.

PHTHISIS.

In the course of this disease, cough is usually a troublesome agent, and chiefly by disturbing the rest at night, and by inducing vomiting after meals. To these two evils, may be added others, as the increase of irritation, and possibly of congestion, and the setting up of inflammatory action, or of hæmoptysis, as in the early stage of the disease. In the latter instance, it is associated with a very small quantity of secretion only, but the sense of irritation is so persistent, that the patient is induced to continue the cough until the little secretion is expectorated, and then only he is, or fancies he is, relieved. The removal of the secretion is of no importance to the disease, and its presence could not have sufficed alone to cause so continued a cough, but the irritation excited the cough, and the prejudice of the patient continued it. Hence, it has always appeared to me to be important to stop this cough, both by disabusing the patient's mind of the necessity for removing the phlegm, and by remedies for its arrest, and the former I have found as efficacious as the latter. The removal of the cough cannot be an injury, for, if we believe that tubercle may be eliminated with the expectoration, at an early period, and that this is important in the cure of the disease, the presence of the matter will excite sufficient cough for its removal, irrespective of the treatment now to be recommended. The continuance of the cough is, however, in itself, oftentimes a serious evil, by leading to active pulmonary mischief, and the removal of it prevents the occurrence of such evils.

The vomiting, which even in early, but more particularly in advanced cases, frequently follows a meal, is always associated with cough. In some instances, the cough is very slight, so as almost to escape attention as a cause of the vomiting; but I am persuaded that the vomiting in nearly all cases is due to the act of coughing, accompanying an irritable condition of the system, and a state of distension of the stomach, which further impedes respiration, and it is not due to mere disorders of the digestion. Consequently, my aim has been to avert it, by directing that the meals should be small (yet nutritious) and frequent, so that the stomach shall never be distended, and by the administration of remedies to arrest the cough. By these two modes, the vomiting has commonly been prevented.

The night cough is, doubtless, associated sometimes with change of temperature on going to the bedroom, and also with secretion, and particularly in the morning hours, in advanced cases. When it is troublesome, it is more than is needful for the removal of any quantity of phlegm, and hence should be arrested. It has also the further evil of disturbing the rest, and of interfering with these assimilative functions which commonly proceed at night, and when the pulse is quiet, and also the disagreeableness, in many instances, of inducing or increasing the night perspirations. On these various grounds, the prolongation of the existence of the patient essentially depends upon its removal.

In all these cases, the regular exhibition of small doses of morphia, as in bronchitis, has been very useful in preference to the occasional administration of a large dose of opium or morphia at bedtime only. In the early, as, indeed, in the later stages also, the form which I have preferred is the combination of Quassia, Tinct. Ferri Sesquichloridi, and Morphia, in the proportion of $\frac{1}{16}$th of a grain of the latter three times a-day; but as a decomposition occurs when the morphia is added to the iron, it is better to give the latter in a separate form.

The good effect in stopping vomiting by arresting the cough has been very marked; and to this end I have administered a special dose, either immediately before or immediately after the meal. It is, however, also necessary, that the remedy be given with regularity through the day. The night cough calls for the exhibition of a special dose soon before lying down, and also on first awakening in the morning, but I have seldom found it needful to give more than one, or perhaps two doses through the night.

As a concluding general remark, I may state that morphia, when repeated in the minute doses referred to in the three diseases now considered, does not produce headache or any uncomfortable sensation; neither does it appear to arrest secretion, except by the indirect action of preventing cough. It sometimes interferes a little with the action of the bowels, but not to the degree, by any means, which usually accrues from the ordinary large dose of opium, and is most easily obviated. It never lessens the appetite, nor produces dyspepsia, but indirectly rather benefits them.

In the foregoing short communication, morphia is commended in preference to other narcotics, because its strength is more constant than that of vegetable extracts, and less evanescent than hydrocyanic acid. It is also capable of very minute subdivision, so that the dose and the effect may be graduated with great nicety. Hence, it may be given, without alarm, to young infants as well as to adults.

The minuteness of the dose, conjoined with the frequency of its repetition, and the absence of expectorants, are the points most to be borne in mind, and induce a result different from and better than that obtained from occasional and larger doses.

The principle involved is, that of allaying nervous irritation, and thus preventing all cough not required for the expulsion of detached phlegm, and of removing spasm of the bronchial muscular fibres when that exists. It also assumes that cough may be a substantive disease, or so essential a part of a disease, that it calls for separate treatment both for its removal and for the prevention of certain evils which would result from its continuance; but the removal of the cough is not attempted empirically as the removal of a symptom or an effect, but by the removal of the conditions on which the cough depended.

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ARTICLE IV.—*On a Peculiar Form of Sclerotitis.* By R. HIBBERT TAYLOR, M.D., Surgeon to the Liverpool Eye Infirmary, and Lecturer on Ophthalmic Medicine and Surgery in the Royal Infirmary School of Medicine.

IN the fifth fasciculus of his work on the "Pathology of the Human Eye," Mr Dalrymple adverts to a form of inflammation originating primarily in the sclerotica, which he thinks has not been noticed in this country, or at least is not described in any of our systematic treatises on the diseases of the eye.

The details which he gives of this affection are mainly derived from the review of an original paper by Dr Sichel of Paris, entitled, "Upon a peculiar form of partial Inflammation of the Choroid, and of the Sub-conjunctival Cellular Tissue, and its Treatment." My attention having been thus drawn to the subject, several cases in succession presented themselves, the symptoms of which closely resembled those described in Mr Dalrymple's work. The disease appeared to be new to me, and peculiar in several respects. I have since met with other examples of it in different stages of development, and am now induced to collect and arrange my observations regarding it, as a contribution, however imperfect, to the sum of our knowledge of eye diseases.

The disease seems to consist, as I think Mr Dalrymple correctly observes, in a primary circumscribed inflammation of the sclerotica, which tends to spread *outwardly* to the sub-conjunctival cellular tissue, and *inwardly* to the structure of the choroid and corpus ciliare. He thinks that it is attended with the deposition of tubercular matter in the tissues above named, and at a more advanced stage of the disease the cornea is apt to become the seat of opacities, varying in size and density.

The symptoms usually presented by the disease in a moderate state of development, are the following:—Several enlarged and tortuous blood-vessels are observed advancing from the periphery of the eye-ball towards the border of the cornea, usually the outer and superior portion, that which is directed towards the external canthus. At a short distance from the corneal margin, these vessels subdivide into a leash of smaller twigs, assuming a sort of circular or ovoid arrangement. Within the area thus marked off, one or more small conical-shaped bodies are observed, separate from each other, of reddish colour at the base, and white, or yellowish white, at the apex. They are firm in consistence, and evidently connected with the subjacent tissues, as they cannot be moved with the finger. The textures surrounding them are generally somewhat thickened and elevated, and the appearance presented, is not unlike what we might suppose to arise from the deposition of some solid matter in the substance of the sclerotica and sub-conjunctival cellular tissue. The cornea is usually, although not always, the seat of some opacity. These opaque patches vary in form, extent, and density. They usually occupy the side of the cornea nearest to the thickened sclerotica, and are either separated from it by a clear strip of cornea, or, as more frequently happens, are united to it; presenting the appearance as if the opaque texture of the sclerotica had advanced upon the cornea. In some instances, where this union was only partially developed, minute red vessels could be distinguished, running apparently upon the internal surface of the cornea, and extending from the thickened portion of the sclerotica and corpus ciliare, towards the corneal opacity.

Pain is usually slight in degree, sometimes it merely amounts to a sensation of tenderness on pressing the eye-ball, or a feeling of stiffness on rolling it from side to side, or on exercising the eye much by artificial light.

The movements of the *pupil* are usually sluggish, or almost wholly suspended, in the early stage of the disease; and at a more advanced period, it is apt to become irregular, and displaced from its central position towards the seat of the disease in the sclerotica.

Vision is usually impaired in a greater or less degree; where opacities of any extent exist upon the cornea, it will, of course, be materially affected, but independently of this, it is generally imperfect, and liable to become more so when the eye is used for any length of time. There is an *increased flow of watery secretion* from the eye-ball, which is promoted by anything which tends to augment the vascular congestion, as walking against a current of air, or exerting the eye in looking at minute objects.

With regard to the *persons* most liable to attacks of this disease; it seems to affect females more frequently than males, usually young adults, and those especially of a strumous diathesis. One eye is usually attacked rather than both, although it may appear alternately in each; and when one is the seat of the disease, it may affect both sides of the eye-ball simultaneously, or, commencing on one side of the cornea, may gradually travel round its entire circumference, disappearing in one spot as it is developed in another.

One of the most characteristic features of the disease is its chronic obstinacy. It is slowly and insidiously developed. Commencing with a slight feeling of uneasiness in one corner of the eye, ball, a little redness, which at first comes and goes, according to circumstances, and slight lachrymation, it gradually steals on, till at length the patient is aroused to a consciousness that there is something materially wrong with his eye, from observing an opaque spot upon the cornea, and finding that he can no longer use the organ as formerly. So much is this the case, that it is not uncommon to find that the commencement of the disease, dates several months previous to the time when the patient first applied for medical advice.

Of seven cases, minute details of which I have preserved, two occurred in males, and five in females. Their ages varied from fifteen to thirty-six years, five out of the seven being under thirty-one. In all of these instances, *one* eye only was attacked, five of them being in the *right* and two in the *left*. In each case, with one exception, it was a first attack. The duration of the disease, previous to being seen, varied in these examples from three weeks to four years. In the majority it had existed during several months. In the solitary instance of a second attack, the previous one had occurred five months earlier; and after lasting four or five weeks the disease disappeared.

In reference to the immediate *cause* of this disease, I have nothing special to record. In one instance, it was attributed to exposure to cold, and in another, the symptoms were aggravated from a similar cause, while in a third, and that the youngest patient, the disease appeared in conjunction with otorrhœa, and disorder of the general health.

The only other disease with which this affection is likely to be confounded, and it is a mistake not likely to be made by any one familiar with the pathology of the eye, *is a pustular inflammation* of the conjunctiva. Both of these ophthalmiæ occur in young adults, and in both, we observe enlarged and tortuous blood vessels, running towards, and subdividing round a common centre. In pustular ophthalmia, however, as its name implies, the point of attraction, is a pustule, or vesicle, seated in the conjunctiva, and moveable with this membrane; generally of a rounded figure, flattened upon the surface, and either filled with a semi-opaque fluid, or at a more advanced stage, forming a shallow ulcer. These appearances are very unlike the firm, immoveable cone-shaped body, seated upon a dense thickened base, and described as a characteristic of the disease under consideration. Pustular ophthalmia, in addition, is rarely accompanied with dense opacities upon the cornea, or with any indication of inflammatory action in the tissues of the sclerotica, iris, or choroid.

From what has been already said, with regard to the development and progress of this affection, it will readily be understood that the prognosis is not likely to be of a very cheerful or encouraging character. In any case, the improvement is likely to be slow, and the more so, in proportion as the disease has existed for a longer period. When the disease is limited mainly to the sclerotica and the superior and immediately subjacent tissues, we may anticipate a return to health under appropriate treatment; but should the cornea have become the seat of large and dense opacities, and if, as may be anticipated in such circumstances, the textures of the choroid and corpus ciliare are also implicated, the result under any treatment, is not likely to be so favourable; and should we succeed in arresting the progress of the disease, the eye will probably remain permanently altered in structure, and vision more or less impaired.

Treatment.—Judging from the inflammatory character of the disease, and the amount of visible congestion of certain tissues of the eyeball, which usually exist, we might naturally anticipate benefit from the abstraction of blood, at least locally. I have not, however, seen it do any good, even when apparently most indicated, but on the contrary, the practice seemed rather to be injurious. General depletion would not be thought of, as the tone of the patient's system is more frequently below, than even at the level of sound health. Mercury exercises a decided control over the disease; it should be given in small doses, and cautiously introduced, so as gradually and mildly to affect the mouth. From the extremely chronic and obstinate character of the inflammation, it may be necessary to keep up the action of the remedy for some time, and in so doing, we must take care that the patient's system does not sink too low, as is apt to occur; any indication of this nature must be met by a more nutritious diet, and the addition of a tonic to the mercurial.

Counter-irritation by blistering, is of the greatest service. In severe cases, it would probably be as well to delay its employment till the symptoms are somewhat mitigated by the action of mercury, when it may be commenced at once. In milder instances, I have found the operation of the blister alone, sufficient to cause the disappearance of the disease. The temple appears to be the most convenient locality for its application, especially in females, when it is concealed by the hair. It need not exceed in size a five shilling piece. A free discharge should be maintained from it during several weeks, and to effect this, I have found Albespeyres blistering paper, No. 2, to be the most effectual, the cleanest, and most convenient application. After the cuticle has been raised by a fly blister applied at night, and removed in the morning, the raw surface should be dressed with the paper, at least twice daily.

Stimulating collyria of all kinds are injurious, while those of a milder character are productive of little if any good. Poppy decoction, used tepid, or tepid water alone, will answer every purpose to be gained by a local application of this kind. If the pupil inclines to contract unduly, or if we apprehend any risk of the iris adhering to the capsule of the lens, the extract of belladonna may be added to the lotion with which the eye is bathed.

Pain in the eyeball, or in the surrounding bony parts, if much complained of, will probably be relieved by rubbing the extract of belladonna into the temple and eyebrow, or by the similar use of strong mercurial ointment, combined with powdered opium, in the proportion of three parts of the former to one of the latter.

Entire rest of the eyes, both eyes I may remark, is quite indispensable, when the disease is at all severe, and they should be defended from the glare of light, by the use of a broad green or blue shade, or by glasses of a pale blue tint. In milder cases, we must enjoin a cautious and not prolonged employment of the eyes; a restriction which it will be found difficult to enforce in many instances. To obviate, in some measure, the injury which imprudence is likely to occasion, we may recommend the use of coloured glasses of a large size; and in females, the addition of a thin blue veil on going out of doors.

In all examples of this disease, which are ever more or less dependent upon, or at all events accompanied with, an abnormal condition of the system at large, special attention must be directed to the constitutional symptoms of deranged health. Regulation of the diet, and of the general habits of the patient, is of much importance in conducting the treatment, and I have frequently found a nutritive and sustaining diet to be required, and of service, rather than one of an opposite character.

Finally, the entire duration of the treatment in these cases, I find to be as follows:—In 1, two weeks; in 2, four months (but of these 2, one has not been seen for upwards of two months, when she was still far from well, so that, not unlikely, this case is still going on); in 1, five months; and in another, seven months. In 2 others the period of treatment is not recorded.

In conclusion, I may add, that instances of this disease are occasionally to be met with, which will baffle all our efforts for their removal. In such circumstances, probably more benefit will be derived from frequent change of air, by land travelling, than from any other treatment which we can recommend. I have met with at least one case, in which a cure was effected by this means.

CASE BOOK.

XXI.—*Case of Poisoning by Eating American Partridge.* By JOHN G. M. BURT, M.D., F.R.C.P.

THE American partridge has, of late years, been much in use in this country, particularly, in winter and spring, when game is scarce, and although, as we have them, they may not realize the description of Audubon as to their surpassing excellence, they are doubtless an agreeable, and generally, a safe article of diet. It does not, however, seem to be generally known in this country, though well known in America, that their use is occasionally followed by most alarming, and sometimes by fatal illness. That this is not uncommon on the other side of the Atlantic, is evidenced by the fact, that Dr Bigelow of Boston, has, in a recent work, detailed a selection of twelve cases from numerous others; whilst on this side, several cases have occurred, some in this city, although they have not been so prominently brought forward, and their histories detailed, as they might, or perhaps ought to have been.

The occurrence of a well marked and most alarming example of poisoning, after eating this bird, having, within these few weeks occupied my attention, in the person of my much esteemed friend, the accomplished author of the *Book of the Farm*, I consider it right to make known the particulars of it, and I feel that I cannot perform my duty so faithfully, as by presenting to the reader, the account given of the case, by the patient himself.

Full and circumstantial as that account is, I am unwilling to abridge it, for, while it is a striking illustration of the possession of consciousness, and the faculty of memory, during hours when the sense of sight, and the power of voluntary motion, were mostly gone, and the circulation apparently suspended, it is a singularly minute account of the feelings experienced, rarely to be met with at the hands of a sufferer by poisoning.

My usual dinner hour is five o'clock, but on Thursday the 13th of March 1856, a friend from the country having called a little before five, I was prevented sitting down to dinner until about a quarter to six. I was in my usual good health on that day. The dinner consisted of a basin of potato-soup, half of an American partridge, a pancake sweetened with apple-jelly, and a bit of Gruyère cheese. The partridge was split up the back and broiled, not roasted, and served with toast. The drink consisted of water; and after dinner, of two glasses of Kaltstädter, a light red Rhenish wine, which I have been in the habit of drinking for some time past, in alternation with another red Rhenish wine, Assmaushauser, of a stronger description.

I may mention, that I have, for several years past, in their season, in this country, in the beginning of the year, eaten American partridge with the utmost impunity. I got them always from Mr Muirhead, the poulterer, in Queen Street. The last brace I purchased from him, about ten days ago, and one of them, roasted, I had eaten a few days before last Thursday, without feeling any injurious effect. The part of the bird I usually ate was the white of the breast, but, in this case, I enjoyed the bitterness of the leg, the back and side bones, as we do of grouse of this country.

Description of Bird.

This bird, though commonly named a partridge, is really a grouse. It is the Ruffed Grouse of America, *Bonasia Umbellus*, and is well and distinctly described by Wilson in his Ornithology of America. The male has a crest, the female none. Wilson intimates that when the "birds are allowed to remain undrawn for several days, until the contents of the crop and stomach have had time to diffuse themselves through the flesh, as is too often the case, it may be unwholesome, and even dangerous," and that a week or two may elapse after they are dead, ere they are purchased for the table, and picked and drawn. A much longer time must elapse before they can be used in this country.

The dinner lasted till half-past six, and it being then daylight, I was about to sit down before the fire to read, as is my custom after dinner, when a drowsi-

First Sensations.

Weight on Body.

Blindness.

Desire to Vomit.

ness overcame me, which induced me to lie down on the sofa. I had not lain above a quarter of an hour or twenty minutes, when an uneasiness across the region of the stomach, impelled me to rise. I felt no pain, but only a tension across that region, as if arising from compressed air wanting vent. I had no sooner got to my feet, when an extraordinary sensation came over me. I imagined I *felt* the whole plexus of nerves or of blood-vessels, I know not which, covering the back of my head, shoulders, arms, chest, and abdomen, accompanied with a glowing heat therefrom, and pressing me down with a weight, not unlike what a ringed mail shirt of a Circassian chief might do. The face was free from the sensation, but I thought I saw a distinct reticulation of blood vessels on closing my eyelids. Such sensations being quite unusual to me, I did not know what to think of them, and how to get rid of them, and yet felt no alarm as to the results, but hoped that the feeling would soon pass away, and that it might have arisen from a temporary derangement of the stomach. It never occurred to me to take a dram of brandy, and I had no desire to drink anything. I felt an inclination, however, to go to the water-closet. I had taken a Dr Burt's red aperient draught (made from a recipe I have, by Mr Robertson, druggist, George Street), in the morning before breakfast, feeling I would be the better for a clearing out, and it had operated very satisfactorily after breakfast, and this second desire for the stool was just the consequence of that medicine, after again partaking of food. Seeing the fire in a low state, I took the coal scuttle in my hand to the kitchen, on my way to the closet, which is inconveniently situate here out of doors, and I put on my hat to go out, with the sensation of the mailed shirt still upon me. On my return from the closet, I found that the servant had mended the fire, lighted the gas, and closed the shutters. Finding the room in this comfortable state, I sat down before the fire, with the intention of reading, after the sensation should have subsided. The sensation was neither painful nor alarming, but it was anything but agreeable. I had not sat many minutes before the fire, when I suddenly lost my sight; it was not total blindness, for I could see a red glare from the fire, and a white glare from the gas, not unlike sun-light through a thick haze. The sensation of the mailed shirt as instantly fled as the blindness had come, and it was succeeded by a sensation of intense cold, as disagreeable as if cold water had been poured upon my head, over my shoulders, and arms, and body. Deeming this change worse than the weight, I felt alarmed for some moments, and thought that rest upon the sofa would do me good. The cold seized my hands and feet so intensely, that I could not continue to lie without a covering of some sort. I groped my way, in the first instance, into my bed-room, which adjoins the dining-room, for my nightcap, which has but little warmth, being made of thread, and then I groped into another room for my plaid. Having procured these, I lay down again upon the sofa, but had not lain many minutes, when I felt a strong desire to vomit. Still in blindness, I groped my way back into my bed-room for the pot under the bed, but on returning with it to the dining-room, for the sake of the heat, I fell down on the floor, not from tripping, but from sheer prostration of strength, my knees having doubled under me. I got to my feet again, immediately, and sat down on the sofa with the expectation to vomit. I could not vomit, though making vigorous efforts. The noise of the fall had brought up my housekeeper, who was sitting in the room below, and she tells me she found me sitting on the sofa, with my eyes glazed, staring up at the ceiling, my mouth open and gasping, and my face of various colours. She was exceedingly alarmed, and especially when she asked me if she could do anything for me, or that she should send for Dr Burt, and I made her no reply. Her alarm at this sudden change in me was the greater, that she had seen me in my usual good health after dinner. Hearing something extraordinary in the room, the servant next came up from the kitchen, and she found me also in the state I have just described. Both never doubted I was dying. The housekeeper then inquired if I would have water to drink, and I faintly replied, yes. I had distinctly heard her two former questions, but had not then the power to answer them. I constantly evinced abortive efforts to vomit. I drank a little cold water. She then wished to know if I would have warm water, and I replied more promptly, By all means. On drinking the warm water, I obtained some degree of relief by vomiting, which I could not otherwise obtain, and there was also a partial cessation of blindness. Meanwhile the housekeeper had sent the servant to a labourer, who resides in a cottage on the ground, to go with all possible speed for Dr Burt. The labourer sent his youngest son for Dr Burt, whose house he reached about eight o'clock. The relief was very temporary.

Choking Sensation.

Brandy.

Vomiting.

The desire to vomit returned with redoubled violence, my throat becoming choked, and my stomach felt so distended as if it would burst. The blindness returned as darkly as ever. In this way I alternately gasped and convulsively twitched my arms in darkness, until I recognised Dr Burt's voice. Dr Burt inquired of me what I had taken for dinner, and I replied an American partridge, upon which he declared that I had been poisoned by it. The housekeeper, in an agonised voice, had requested me only to speak to her, but I could not, although I heard distinctly every word she uttered, such was the feeling of suffocation I experienced. Dr Burt gave me a tumbler of warm water to drink, and he inquired if there was any brandy in the house. The housekeeper found the brandy in the press, and, after drinking a glass of it, I vomited with comparative ease, and there was a partial return of the sight. Again the feeling of suffocation returned, accompanied with a sense of horror, and of the blindness; but I felt no apprehension of death, nor an approach to it. I believe that the sight of my condition was more alarming to others, than the sense of danger to myself. After repeated doses of warm water and brandy, I had retched up a considerable quantity of matter, but so feeble had I become, that I could not support the pot in my hands, and let it fall unconsciously upon the floor, and broke it, and spilt its contents on the carpet. This accident created a new scene of confusion. A wash-hand basin was provided me, which I held on my knees while sitting on the sofa. I cannot go through all the particulars of my paroxysms at this period, the spectators being better able to relate them than I can, but I retained my consciousness all the time, and heard every remark that was made, although I could see nothing.

Sense of Chill.

After the symptoms of danger had subsided, when the sense of horror had passed away, and the convulsive twitchings of my arms had ceased, in consequence of the sense of suffocation having left me, the doctor informed me that he had to go to town for something, and would soon return, and recommended me to go to bed in the meantime, to cause the return of warmth into my chilled hands and limbs. I could not take off my clothes without assistance, and it was like a last effort on my part, that any portion of my dress could be removed. I could not walk to my bed, short as the distance was, without support; and on getting into it, I felt as if I was done, and expressed myself so. A cold shivering seized my entire body, and a cold perspiration burst out on my face, and the blindness continued without abatement. At this moment I must have been a pitiable sight, for so great a change to overtake me in so short a time! A creeping feeling accompanied the coldness of the hands and limbs, as when a foot is said to sleep; and yet I could converse, the sense of suffocation having entirely left me.

Blindness gone.

The doctor returned with my friend Mr Nasmyth. On receiving a glass of brandy from the doctor, while in bed, my sight instantly returned, and I could distinctly see a large print upon the opposite wall of the dining-room, through the open bed-room door. The return of clear light was a cause of great joy to me, as I was by no

Application of Warmth.

means certain of its return at all. I felt certain, however, that the cause of my illness was now removed, cold and uncomfortable as I felt. There was no pulsation at the wrist or the temples, and no beating of the heart could be felt on the breast. I had now been in that state for four hours and a half. Means must therefore be used to cause the return of heat to the body, and this must chiefly be done by the application of hot water. There was one copper hot water bottle in the house, but none of earthen ware. At this conjuncture, my neighbour, Mr Child, kindly sent me a number of hot water earthen-ware bottles, and not only so, but caused them to be sent, filled with hot water. My own bottle at my feet, a large one at my back, another large one at the abdomen, and a flat one for the chest, completed these appliances, while my legs were rolled in warm flannel, and the bed clothes increased with additional blankets, plaids, and shawls. With these, and a doze of a solution of a salt of ammonia, with occasional half glasses of brandy, the pulse was again established, and heat returned to the body. By midnight, everything had been done that could be done for me, and my medical friends left me for the night. I attended assiduously to keeping the hot water bottles to their proper positions, as long as necessary, not expecting to enjoy the luxury of a sleep, but thankful of quiet rest alone, after an evening of such awful exertion. Thus situated, I not only returned to heat, but got into a state of perspiration, so much so, that I could not endure the bottles longer than to half-past three, when I called the servant to remove them, except the one at my feet.

Condition next day.

Mr Nasmyth kindly called on me early next morning (Friday), and the doctor came at eleven, when I was to breakfast on roll bread steeped in a cup of sweet tea. My pulse recovered its ordinary tone during the morning. I could hear my heart beat with my head on the pillow, as steadily as the strokes of a steam-engine in the floor below me. My pulse is always slow, never exceeding sixty beats in a minute, and its character is full, steady, and firm. My tongue was in a good state. The muscles of the chest and abdomen felt sore after their last night's exertions. My hands and arms tingled, and then seemed as if heavy weights were thrown over my arms between the elbow and the hand. Feeling thus fatigued, and the air being cold with an east wind, the doctor recommended my remaining in bed all day, and taking nourishing food. I dined in bed at five o'clock, on beef-tea, beef-steak, and Gruyère cheese, and drank two glasses of port, and washed the whole down with some brandy and cold water. I had recovered my usual good health. I felt tingling in my hands and arms all day, whenever I had occasion to use them, and at times I amused myself by *rubbing* my hands against the skin, the shirt, or the sheet, and a very extraordinary sensation was thereby experienced. I felt as if numberless delicate steel springs were attached to, and suspended from, the palms of my hands, vibrating at a high rate, and accompanied with a sensation of heat. The vibrations ceased of themselves in a few seconds, and they ceased, in even a shorter time when I spread out my hands forcibly, tightening the skin of the palms, and then they gradually disappeared from the points of the fingers. The feeling was like the escape of a large quantity of electricity from blunted points. This sensation, though unaccompanied with pain, was by no means agreeable. The vibrations were producible at pleasure. Thinking it too long to fast from five in the afternoon to ten or eleven next morning, I took half a basin of beef-tea at ten o'clock at night, a drink of brandy and water, and about one-third of a wine glass of brandy. The moment I had taken the brandy, the vibrations in the palms of the hands ceased, and have never since returned, and they could not be reproduced by rubbing. I had slept from twelve to six o'clock on Saturday morning, but the sleep was not refreshing.

I rose on Saturday after breakfasting in bed on tea, roll, and Finnon haddock. The doctor came about eleven o'clock. He took with him half of the partridge I had left at dinner on Thursday, with the exception of a little of the breast, which the housekeeper had given to the young cat in the house on Thursday evening. The doctor also took away the crop of the bird, with its contents, to have them examined and analyzed. The servant had drawn the bird for dressing at dinner, and had taken the crop and head to the dunghill, where the crop was found entire on Saturday forenoon. The skin of the crop was moist when drawn; it had become dry by exposure to the air. After shaving and washing I felt quite well, but thought my eyes seemed more glassy than usual.

Effect on Lower Animals.

I received this information on Sunday from the housekeeper: The young cat had eaten part of the *breast* of the bird on Thursday evening, and was no worse for it. The old cat had eaten the *bones* of the bird I had left, also on the Thursday evening, namely, the bones of the leg, the back and side bones, and the breast bone and ribs; and on Friday forenoon she was observed by the servant, to stagger in her gait when walking in the kitchen and outside the house. She seemed unwell, until she came at length to the kitchen fireside and vomited, when she became better. The young cat had gone to the dunghill on Saturday afternoon and brought away the head and neck of the bird, and eaten them at the stable, and she also became ill, and did not get better until she had vomited, which she also did in the kitchen. From these circumstances, it is probable that these animals had been affected by the poison of the decayed parts of the bird, as well as I had been.

I have been requested to draw up the particulars of this case by Dr Burt, which I have thus done, but perhaps with more particularity than necessary. At all events, I have put down all the particulars I can remember.

HENRY STEPHENS.

Red Braes Cottage, March 17, 1856.

The perusal of the above, I imagine, leaves little to be expected from me; but I think it right to add, that the apprehensions entertained by the females, as to the result, were fully shared in by me. His general aspect was that of a man in a state of complete collapse; his surface of icy coldness throughout, the room being very warm, having a very large fire in proportion to the size of the room, which is very small. His pupils were much dilated, and he was totally blind. He heard, and evidently understood all that he heard, but his utterance was mostly sluggish, while at times he spoke distinctly. His expression, when I attributed his condition to his having eaten the partridge, I shall never forget; the eyes not sympathising with the other features of his countenance in depicting his astonishment.

He was sitting on the sofa when I gave him the first glass of brandy, I immediately made him recline, when his face changed colour from the unearthly mahogany hue to the most feminine fairness, which it lost, however, in a few minutes.

Improvement was steady from the period of his freely vomiting, which the large quantity of strong brandy assisted in enabling him to accomplish, besides contributing to restore the heat of his surface; and, when I left him, after being two hours with him, he was considerably relieved, though I was by no means satisfied that he was out of danger; and my leaving the domestics to carry out my directions, as to the management of the case, was less for the purpose of obtaining more efficient means of treatment, than for that of apprising his early, intimate, and valued friend, Mr Nasmyth, of his condition, by which I also secured Mr N.'s kind and valuable assistance while danger lasted.

Mr S. informs me that now, after a lapse of five weeks, he still occasionally feels the sensation of weight in his arms.

This case does not seem to bear out either of the conclusions arrived at by Dr Bigelow. His first, "That the bird is affected with some disease at the time of its death," seems quite gratuitous, unsupported by analogous facts. Indeed, the condition of the bird, which in plumage and plumpness differed not from others, is a sufficient answer to this speculation.

His second, "That some slow chemical change, *not putrefaction*, may take place when the flesh is long kept in cold weather," seems as unlikely, for were it so, the cases of poisoning from its use ought to be much more frequent in this country, where the birds can only be obtained after long keeping, and are in great demand and consumed in large quantity; whilst, in the present case, the companion bird, of the brace purchased, had been recently dined upon by my friend, without its producing a disagreeable sensation.

His third, "That the idiosyncrasy of individuals renders some persons intolerant of this species of food," to which latter conclusion Dr B. chiefly clings, can apply with no force here, where the patient had, for years, been accustomed to consume them, and sometimes, as in the present instance, chiefly to dine on a portion of one; and I feel firmly persuaded that a portion of that, which reduced the iron frame of my friend, would have made short work with his venerable and faithful housekeeper.

I am much more disposed to coincide with the view taken by Mr Wilson, and to ascribe the evil, to birds whose crops have recently been distended with portions of poisonous plants, being allowed to remain for weeks unpicked and undrawn. May it not be, that the fowler, in his desire to make a good bag, picks up birds which have been themselves poisoned, by an over dose of these same plants. The countless numbers consumed, and the only occasional occurrence of the poisoning, might warrant this supposition, which, I confess, I am the more inclined to entertain, from the facts—that Mr Macnab, of the Royal Botanic Garden, who kindly interested himself in the investigation, has failed to discover, in the contents of the crop of the bird, an adequate solution of the difficulty, and that Dr Douglas Maclagan has not been able to throw any further light on the subject, as the following note will show.

28, Heriot Row, April 14, 1856.

MY DEAR BURT,—I have, according to your wish, examined the remains of the partridge which you sent me, but, as we anticipated, without any satisfactory result. There being no specific poison to look for, all I could do was, to examine the contents of the crop, and then to try whether or not the flesh would yield anything of a corresponding nature.

The whole contents of the crop were exhausted by maceration for some days in alcohol, the spirit was distilled off, and the residue mixed with water. The fluid was then agitated with ether, and the ethereal and watery solution separated by the pipette. The ethereal portion was clear, and bright green. It gave, on evaporation, a dry resinous residue, containing abundance of chlorophylle, and having a marked bitterness, with slight astringency, and free from acrimony. The watery portion was slightly turbid, of a pale wine yellow, and gave a sweetish marked residue, without bitterness.

The piece of partridge was treated in a similar manner ; the whole of it, bones included, being chopped down, exhausted with alcohol, and then treated with water and ether. The ethereal fluid, in this case, was pale yellow, and yielded only some brown fat, devoid of all acrimony, but neither bitter nor astringent. The watery portion left an abundant residue, having the flavour of extract of meat (osmazome), with a very slight bitterness and acrimony, but not more so than is to be perceived by the taste in some of perfectly good quality. It is clear that this bitter matter had nothing to do with that of the contents of the crop, for the latter was soluble in ether, while that from the flesh was not. —Believe me, yours very sincerely,

DOUGLAS MACLAGAN.

Dr Burt.

XXII.—*Case of Temporary Paralysis.* By JAMES YOUNG, M.D., Edinburgh.

(*Read before the Royal Medical Society.*)

History. The patient, a young man of full habit of body, æt. 19, and by trade a fisherman, received a severe injury of the back on the 14th of July 1853, while attempting to pull one of the heavy oars of a large fishing-boat, and though feeling that, to some extent, he had injured his spine, he persevered in working till the 27th of August; when, on lifting one of the oars, he was compelled to let it fall in consequence of the weakness of his back, or, to use his own words, "from his back giving way." Being in the neighbourhood of Stonehaven at the time, he consulted a surgeon of that town, who advised him to wear a warm plaster over the spine till he returned home. I was called to see him on the 1st of October 1853, when I ascertained the previous history of the case to be as I have now stated it. **Symptoms.** There was no appearance of spinal curvature for many months after this, although he complained of great pain over the dorsal region of the spine. **Treatment.** With the hope of affording relief, I drew blood to the extent of twelve ounces, by cupping, followed by the administration of gentle mercurial doses, light diet, and rest, confining him to the recumbent posture for two months. He was so much improved by this mode of treatment, and so free from pain by the beginning of December, that he was able to walk about a little every day. **Progress.** In a short time he even ventured to sea again, and continued to ply the fishing for four weeks, when, from difficulty of breathing, he was compelled to desist and return home. **Dyspnœa.** I could not discover any immediate reason for the use of active measures, and therefore I merely insisted on his keeping the house, but warned him not to use any freedom with himself. From walking out at night, however, he unfortunately became worse, experiencing more pain in the back, and considerable weakness of the legs. During January, February, and March, 1854, he constantly complained of a dull, heavy pain over the dorsal region, but on repeated examinations, no curvature or any other affection of the spine, could be detected. **Blister.** I now ordered a fly blister to be applied over the part complained of, which was attended with some benefit. I saw him after this once a-week, till the 30th of March, when he got rapidly worse, having nearly lost all power over his legs, and on making minute inquiry, whether there was any assignable cause for this retrogression, his mother told me that he had foolishly attempted to dig in the garden, and that since then he had nearly lost the use of his limbs.

Curvature detected.

I again carefully examined the spinal column along its whole extent, and now, for the first time, discovered the existence of a distinct *antero-posterior spinal curvature*, painful on pressure or percussion, and tender to the slightest touch. He could only walk with hesitation, even with the aid of a staff.

Setons.

I confined him to the horizontal posture, and inserted two setons over the affected part, which so far relieved him, that he was able to sit up a little occasionally. In the beginning of May he was sent over to Edinburgh for the sake of obtaining additional surgical advice. The surgeons applied to recommended the continual use of counter-irritation over the diseased portion of the spine, along with the application of strychnia every second day.

Strychnia.

Two days after his return from Edinburgh his legs became so completely paralysed that he could not even stand upright without assistance. Such was his condition (hopeless as it seemed) about the end of May 1854. I enforced the prescribed treatment with the greatest care. The setons were introduced and strychnia applied every second morning. The patient was confined to the inclined plane during the day, but allowed his usual bed at night. His pulse was always high—never below 110. His health, however, remained excellent, and he always enjoyed the full use of his arms, and he even could bend his thighs on the abdomen when lying on his back in bed. Such was the course of treatment followed till the beginning of August, when the issues again wore through the skin.

Setons again.

Believing that he had made some progress during the last few months, I persuaded him to allow the reintroduction of the cords, which was done on the 1st of September 1854, and the strychnia powders were applied every second morning as usual, till violent tetanic spasms of the muscles of the legs were induced. I caused the strychnia to be discontinued, but allowed the issues to remain till the 1st of November, when I could observe a marked improvement in the power he possessed over the use of his legs.

Progress.

I now lost sight of him as a patient, but committed his case into the hands of my successor, Dr Macarthur, who has since informed me of the progress and treatment of the case. Dr M. continued the same course of treatment, and reinserted the setons over the diseased part of the spine, but did not restrict the patient to the inclined plane, he being now (January 1, 1855) able to move through the house. He was prevented, however, from using any liberty while in this precarious condition.

In the month of March still further improvement was visible, he being then able to walk up and down stairs with the use of a staff.

Recovery.

Dr Macarthur tells me that he is now enjoying perfect health. The curve is still seen; but he experiences no pain, numbness, nor uneasiness. He has not been under treatment for the past nine months; and from the last information I received, he was able to move about as well as ever.

Dr M. says, "About our patient —— I have the satisfaction of informing you, that he is now enjoying good health. I saw him two days ago, when he told me that he felt himself quite well. His back is a little weak, but gradually getting stronger. He has quite recovered the use of his legs, and can walk at a quick pace without any awkwardness.

"After you gave the case into my hands, all that I did in the way of treatment was the introduction of a seton on each side of the projecting part of the spine; ordered him to lie as much as possible in the horizontal position, either on his back or front, and to have a table-spoonful of cod-liver oil twice a day. He soon began to have more power in his legs; and from being quite unfit to stand, he has progressed in strength so as now to be able to walk with perfect freedom."

I might add a few remarks, but it is perhaps better to confine myself to a plain statement of the facts as they came under observation, leaving my professional brethren to form their own opinion of this somewhat peculiar case; only let me say, that I saw our patient a few days ago myself, when I found him busily engaged in his usual employment, and enjoying perfect health.

XXIII.—*Case of Sudden Death after Amputation of Leg, under the influence of Chloroform.* By Dr Mackenzie, Kelso.

(*Read before Edinburgh Medico-Chirurgical Society, March* 5, 1856.)

J. R., Kelso, aet. 45, millwright, a very large, heavy man, had his right foot and ankle dreadfully mangled, by the toothed rollers of a bone-crushing mill. **Nature of Injury.** He was brought home immediately to Kelso, from a distance of three miles, in a common cart. He was seen an hour after the accident occurred, by Dr George Douglas. There was then a slight oozing of blood from the wounds; but it appeared to be stayed by the application of cold wet cloths to the parts. On my return home, four hours after the accident, I saw the man, along with Dr Douglas, and we at once agreed as to the necessity for immediate amputation. The man was very averse to this step, and desired to have some time for consideration. We accordingly withdrew for about three quarters of an hour. On our return he consented to the removal of the mutilated foot, on condition that he had chloroform. During our short absence, the cold wet cloths had been allowed to remain off the part, and there had been an oozing of arterial blood, to some extent, going on.

Before leaving the bed on which he was laid, the patient looked in his usual state, pulse about 80, moderate in strength, and regular. **Operation.** He was so strong, that he raised his foot without help, to look at it. He would take no assistance to the operating table; but when he sat down on it, he became somewhat faint. After swallowing a little water, however, he quite rallied, and demanded the chloroform to be given him. Considering him in quite a good state for it, it was exhibited in the usual manner, which, I may state, is, I think, by far the simplest and safest mode of employing chloroform. **Symptoms during Administration.** (Dr M. showed how, by making a hollow cone with a handkerchief.) He inhaled at first pretty freely, but began to struggle before the full anæsthetic effect was obtained. When we ascertained this to be effected, the tourniquet was applied, and tightened till pulsation ceased in the anterior tibial. After again making sure that the patient was fully anæsthetized, breathing and pulse being regular, I requested Dr Douglas to give his whole attention to the effect of the chloroform, which he continued to do till I required his assistance in tying the vessels. I removed the leg, cutting the bones about three inches below tuberosity of the tibia. On completing the flap, a good deal of venous blood escaped, as **Pulse.** usual, in so stout a man, and Dr Douglas then noticed the pulse flag somewhat; it rallied, however, soon again; but we thought the man would be sick, and vomit, but he did not. After securing the vessels, the wound was closed by five sutures, three strips of adhesive plaster, and a bandage. While engaged in the latter part of the dressing, we **Respiration.** again observed the pulse fail, and respiration cease. No effort was made to swallow some stimulant given by the mouth; and I had him raised up to allow it to escape again, lest it should pass into the larynx. The face was quite pallid and death like, and the muscles relaxed.

Treatment. We pulled the tongue well forward, employed artificial respiration, by breathing into the mouth, holding the nose, raising the larynx, and alternately raising and depressing the ribs and diaphragm, dashing cold water on the face, etc.

Kemp's galvano-magnetic apparatus could not be obtained, unfortunately, till fully a quarter of an hour after the pulse and breathing had been observed to cease. When obtained, however, it was in excellent order, and produced powerful muscular contraction; but, alas! too late to be of any avail. Not a single respiration or beat of the pulse could be produced, although the means mentioned were persevered in for a very long time.

Post-mortem Examination. This was obtained, but only when my demand was backed by the authority of the Sheriff—a step which I have seldom any hesitation in taking when an autopsy cannot otherwise be obtained in such a case as this.

The inspection was made forty-eight hours after death. We invited all the medical men of the town to be present; and all who were able were there.

Externally there was great œdema of the whole body; considerable lividity of the face, head, and upper part of the chest, with vesications filled with bloody serum on anterior part of both shoulders and chest. A large quantity of bloody fluid had escaped from the mouth and nostrils; the abdomen was enormously distended with gas; and the body emitted a very strong cadaveric odour.

On opening the thorax, the surface of the lungs was observed much paler than usual; a large portion of the pericardium was visible before disturbing the lungs; there were some slight old pleuritic adhesions at upper and back part of left lung; the posterior part of the lungs were engorged with blood, apparently by gravitation. On the surface of the pericardium there was a great quantity of fatty deposit; the pericardium contained about half an ounce of bloody serum. The heart was pale, soft, flaccid, and very much enlarged in size, with a vast quantity of fat on its surface, and between its muscular fibres. The heart, with the pericardium and appendages, weighed not less than twenty-five ounces. On opening the heart, it was found quite empty, no blood being either in it, or in any of the large vessels immediately communicating with it. The valves were sound, but the walls of the heart extremely attenuated, especially those of the right auricle, which, on being held up to the light, and without stretching them, were seen to be quite diaphanous, and the fibres widely apart.

The bowels were healthy looking, but pale and exsanguine; the kidneys were sound; the liver was large; externally it presented a very peculiar bluish green tint; at the upper part its substance was very friable, and showed a very advanced state of the fatty degeneration. In the lower and middle part of the liver, the *nutmeg* appearance was very distinct.

The brain looked sound, a very small quantity of serum being in the ventricles, and the substance looked pale when cut into.

The amputated foot was examined. The bones of the metatarsus, tarsus, and extremities of the tibia and fibula were very much crushed.

Several motives have conspired to urge me to bring this case before the Society. *First*, my duty as a member, to communicate the particulars of any interesting or obscure case which may occur in practice. *Second*, the hope that I might enjoy the opportunity of having the opinions of my professional brethren in such a case; and *Thirdly*, that I may aid in putting down popular clamour against a most valuable and powerful agent, if it be found not to have merited the abuse heaped on it.

It may not be generally known to the members of the Society, that the three recent cases of sudden death during, or soon after the exhibition of chloroform, the one at Coldstream, and my case at Kelso, the particulars of which I am about to relate, have occurred within a radius of four or five miles of the residence of Dr Roberts' unfortunate case, which was lately mentioned at this Society. The popular impression in that locality, therefore, is at present not favourable to the employment of chloroform, whether on good grounds I shall not at present say, but this I shall aver, that members of our noble profession are in a very different position from the public; it is their part calmly to examine all the premises and particulars of each individual case before forming conclusions and expressing opinions regarding these—a part which every well qualified and right-hearted medical man will desire to perform towards a professional brother.

The question presents itself, what was the cause of death in this case? From the symptoms observed at the time of dissolution, and the appearances found after death, it appears to me there can be no doubt that syncope was the *immediate* cause of death.

Then arises the query, what was the cause of this fatal syncope? To answer this satisfactorily, it may be necessary to know something of the previous history of the patient. The man was exceedingly fat, and the slightest exertion produced most distressing dyspnœa, as might have been expected from so weak a heart as we found on dissection. His habits were the reverse of regular. He lived entirely alone, in an apartment which was visited only once a week by a female relative, from which we may suppose his meals were not so regular, or of so substantial a character as so large a man required, and were, no doubt, frequently supplemented by liquors more potent than beneficial. On the weekly market-day, his rule was to exceed very much. I may also mention, that he was so nervous that when going through the usual ordeal of *being made* a freemason, the ceremony had three times to be stopped on account of the alarming faintness the fear caused.

Was the cause of death, then, nervous shock, chloroform, hæmorrage, or a combination of evils acting on a system much weakened by organic disease?

I cannot think the nervous shock caused the fatal syncope; because, under the chloroform the pulse continued regular and steady. It is right to state that the patient was very desponding about the result of the operation, and frequently referred to the case of a near relative who had had his foot amputated after an accident, and died after the operation. And when I was carefully ripping the seam of his trowsers, to save them for future use, he begged I would not take such pains, as he knew certainly he would never have them on again. Such presentiments are, to say the least, always very disagreeable before an operation,—although, of course, no one could suppose that they alone could cause death.

The chloroform I am also disposed to acquit of having been the guilty agent. When the patient succumbed to the anæsthetic, the pulse and breathing continued as I have before said—normal, and it was not till at least six or eight minutes after its exhibition had been discontinued, that the fatal sinking showed itself. After securing the posterior tibial, which was readily done, some minutes elapsed before I could properly secure the anterior tibial, a difficulty, which operating surgeons know, very often occurs with this vessel. No other vessels requiring tying, the tourniquet being loosened, I snipped off a portion of the nerve which was protruding rather far; this the patient felt and winced under, showing sensibility by uttering a murmur of sense of pain.

The state of the circulating organs was so different from what had been previously found in persons who had been thought really to have died from the effects of chloroform inhalation,—for instance, from the medico-legal report of the case which occurred at Coldstream, it appears the left side of the heart was full of blood. And in Dr Roberts' case, with the particulars of which you are all acquainted, the appearances found were entirely different from those observed in this case.

Appearances would, at first, seem to point to hæmorrhage, as the true cause of the syncope. The very exsanguine state of all the organs, and perfect emptiness of the heart and large blood vessels seem to justify the conclusion. But, after the most searching inquiry, I find the quantity of blood lost at the time of the accident, between that time and the operation, and during the operation, by no means sufficient to account for the fatal occurrence.

On a review of all the circumstances of the case, I cannot but call to mind several medico-legal cases I had the opportunity of seeing when assistant to my friend, Dr Watson, now Watson Wemyss, where, in the bodies of several strong large men, only a very small quantity of blood could be found, and no sign of hæmorrhage having occurred. Referring to these cases, Dr W., in his work on *Culpable Homicide*, says, "It is to be recollected that blanching, or want of blood in the dead body, sometimes exists without hæmorrhage; before death I have frequently," says he, "observed this in habitual drunkards of the lower order, who had taken plenty of drink, and but little food for a length of time."

It appears to me that death, in this case, was produced by a combination of evils,—no single one of them named serving to afford sufficient cause for the fatal result. We have seen the state of the heart, and can imagine how a very slight hæmorrhage would affect it; we have seen the desponding state of the patient, how little nervous energy his system possessed to assist in rousing him from his state of collapse—the extremely diseased state of his liver, and the state of his system generally, as evidenced by the unusually rapid progress decomposition had made in the forty-eight hours between death and the autopsy.

Part Second.

REVIEWS.

1. *Jahres-Bericht des unter dem allerhöchsten Schutze Ihrer Majestät der Kaiserin Maria Anna stehenden ersten allgemeinen St. Annen-Kinderspitales, für* 1852. Wien, 1853.

Annual Report, for 1852, *of the St. Anne's first general Hospital for Children, under the patronage of her Majesty the Empress Maria Anna.* Vienna, 1853.

2. *Berättelse om Sjukvården vid Kronprinsessan Lovisas Vårdanstalt för Sjuka Barn, från d.* 6 *Febr.* 1854 *till och med d.* 31 *Dec. samma år; afgiven af* Professor GUST. VON DÜBEN, andre Läkare vid Vårdanstalten. Stockholm, 1855.

Medical Report of the Crown-Princess Louisa's Hospital for Sick Children, from 6*th Feb. to* 31*st Dec.* 1854; by Professor GUST. VON DÜBEN, Assistant-Physician of the Hospital. Stockholm, 1855.

3. *Annual Reports of the Hospital for Sick Children,* 49 *Great Ormond Street. Patron—Her Majesty the Queen.* London, 1853, 1854, 1855, 1856.

THERE is a duty incumbent somewhere, with reference to our medical school, which, sooner or later, must be encountered with decision, if it be desired or expected, not only to advance, but even to preserve, its relative position among the kindred institutions of Europe. This, at least, is no period, if indeed a zealous spirit could recognise it at any time, in which to remain satisfied with pre-existing resources, or to rest upon the credit of former achievements. We cheerfully own our pride in the past history, as in the present distinction, of the medical department of our honoured University; and we are not insensible to the eminent merits of the extra-academical school which is associated with it in its labours. Could we have vindicated as thoroughly the unity and purity of doctrine in the one, as in the other, our satisfaction would have been unmingled; and we should have been saved from the consciousness of an anomaly which is looked upon by no sister school, whether at home or abroad, without surprise and sorrow. But such specks are insignificant amid the general lustre, and in a short time they will pass away and be forgotten. If they have an influence anywhere, it should be but to elevate the true lover of knowledge, and to excite him to renewed exertions in strengthening the foundations, and enlarging, consolidating, and adorning the structure of genuine science.

Our existing position would have been less advantageous, had there not been many points in which the directors and patrons of our University have shown continuously their anxiety, sometimes to lead the march of improvement, or at other times to follow promptly in its traces where these have been marked out elsewhere. But their power is not always adequate to the charge assigned to them; and a vast educational institution, taking a prominent part in the instruction of the world, in a department of science the most closely bound to humanity, and necessarily constrained to keep pace with the growth of cotemporary knowledge, must frequently demand fresh supports which they cannot supply, and be called into new competitions which they cannot further. Thus, neither the reflecting physician, nor the competently instructed friend of humanity, can hesitate to acknowledge, that, amid the precious combination of means of beneficence and instruction already provided for the great school of medicine established in this city, there is yet a flaw and a defect, liberally supplied in many other quarters, which cannot long be suffered to remain unremedied here, without a prejudicial reaction upon interests of a quality which can have no real seat with any special class of the community, if they be not eminently those of the general public also. The defect to which we allude, is in the appliances for affording substantial assistance, and practical instruction, in the diseases of childhood.

Our attention has been particularly called to this topic, by a consideration of the several Reports now before us; for the friendly communication of which we have to thank the distinguished physicians connected with the respective institutions. Reflecting upon their aims, and the means at their disposal, it was but by a close and unavoidable association, that we turned concernedly to the importance and amplitude of the want, as existent among ourselves, which such institutions are designed to obviate. Facts, of the most open and ordinary access, and of the easiest appreciation, proclaim to us the extensive suffering, and the grievous mortality, which press upon the tender years of childhood. The valuable Life Table, constructed by Mr Farr, as well as the other deductions elicited in the Reports of the Registrar General, and, indeed, the experience of statisticians everywhere, set these facts before us, in their broader numerical relations, with almost appalling distinctness. And let us recollect, that the materials for these statements are gathered, not from among the poor only, with their wide complexity of detriment, but among the universal population of all classes, from the hovel to the palace. In England, nearly 26 per cent. of all born perish before the end of the fifth year: in London, about 35 per cent. before the attainment of the tenth year. Or, referring rather to the recently begun system of returns in Scotland, and taking there the relative proportions of deaths, a less strict method of calculation, but accurate in as far as it extends, and presenting the results in a shape still more tangible for our purpose, we find that, in our own city, the mortality under five years of age, with reference to the general mortality, constitutes an average of upwards of 40 per cent. In Dundee, this proportion has risen to 60 per cent. In Liverpool, at the same early age, a generation is nearly half-exhausted.

Nor must it be forgotten, that this mortality has already been demonstrated, through the experience of our own times and the contrast with that of former eras, to be, in vast measure, a preventable destruction. While it has been ascertained that, of the wealthier classes, with their higher sanitary resources, from 25 to 30 per cent. of all born perish under ten years of age, this proportion, already strikingly great, becomes increased, in the labouring classes, to from 38 to 40, and, under unfavourable conditions, has risen even to from 60 to 70 per cent. Looking more especially to London, the annual deaths among all children living, under ten years of age, have been estimated at two per cent. from among the gentry, at 6 per cent. among the mercantile classes, and at from 26 to 28 per cent. among the poor. Of 14,450 boys, existing under five years of age, 2087 died in Liverpool in a single year: of 14,045 boys in the rural parts of Surrey, only 699 died in the same lapse of time. To ascertain farther the influence of the preventable causes of death, as illustrated by the proportions in different localities, inhabited by different classes of people, and presenting different sanitary conditions, we have only to proceed in our reference to realities as exhibited everywhere, and in a variety of forms, throughout the reports of the Registrar-General. We select but a single other aspect, in which to exhibit these important deductions, by adducing the estimate, that, while the probable duration of life in the rural parts of Surrey is 53 years, in the metropolis it is 40 years, and in Liverpool only 7 or 8 years. But the mean duration of life does not differ so enormously. It is, however, 45 years in Surrey, 37 years in the metropolis, and only 26 years in Liverpool.

There is something, in the calm marshalling of these facts, which startles us from the contrast between the brevity of their expression, and the enormous mass of evils, and of suffering, which fills up the actuality. Looking upon them merely as the product of neglect, it would seem almost as if society had retained the privilege, while it had abrogated the law, which elsewhere, and at other periods, imposed upon it the cruelty of wilfully destroying the weaker offspring, to remove a burden from the community. To a certain class of minds, there might even now be some comfort in considering, that this fearful mortality was but designed as a providential check upon excess of population; and that therefore it was only prudence, in the calculating politician, to leave it to its natural course. The plea is one which, to any so constituted as to propose it seriously, might seem unanswerable, and we should not care to attempt to answer it. But, in fact, as it would be morally an inhuman proposition, so statistically it is utterly groundless. Those places and countries, in which the infantile deaths are the most numerous, are precisely those in which, from no obscure causes, the number of births is proportionately augmented; so that the misery of life, to which the misery of death was to be regarded as the appropriate check, becomes in reality, by a natural re-action, widened and intensified. Nor does this serve to express the whole of the truth. The conditions, which have proved promptly fatal to so many, have left others debilitated for the remainder of their existence: scrofula and consumption have sown their seeds, to appear at a later period, or to spread into generations: diseases of the brain have stamped the traces of mental annihilation on the puling imbecile: epidemics have been nourished into virulence, so as to have gained power over a more extended range of victims: and evils, largely preventable at first, have been thus suffered to develop themselves, till the lives of more than the feeble are everywhere endangered, and all interests are affected. And, if the diseases of this age present an immense accumulation of human distress, and source of human anxiety, it is not less obvious that they must constitute a proportionately large and interesting field of medical practice, exhibiting painfully its peculiar aspects to be studied, and its peculiar difficulties to be mastered. Yet it is precisely in this class of diseases that the practitioner, during the period of his pupilage, possesses no proportionately effective opportunities of obtaining a direct and practical instruction.

These are familiar facts: but no fact can be considered as adequately known, to which is not conceded its just influence. That they express a defect which has been acknowledged and responded to elsewhere, might be held as proved sufficiently by the existence of the institutions, the reports of which are now before us. Yet these institutions are but a limited sample of others which have been reared, and are flourishing, in numerous cities of the continent. Paris, so often in the van in the march of science, had already, in 1802, changed a previously existing establishment into its celebrated Hôpital des Enfans Malades; to the teaching and the labours of which we are indebted for a body of literature on the diseases of childhood, so extensive and so valuable as to be wholly unapproached by all that has been attempted by our native physicians. But we now learn farther, that it has been resolved to found a second hospital, to contain 400 beds, in the same city. Germany, rich also in its literature of this interesting department of medicine, has not neglected to provide the opportunities demanded for its adequate study; and Berlin, Frankfort-on-the-Main, Munich, and Stuttgart, have associated themselves with Hamburg in a labour, the compensating results of which are manifesting themselves everywhere. Russia has its similar institutions at St Petersburg and Moscow; Denmark at Copenhagen; Belgium in Brussels; the Sardinian States at Turin; and even Turkey in Constantinople. Austria, well satisfied with the benefits that have accrued from that first established in Vienna, has founded two others in that city, together with a supplementary establishment at the adjacent watering-place of Baden; and has added, besides, those in Prague, Pesth, Grätz, Brünn, and Lemberg. Beyond all this, there is scarcely a town of even third-rate importance, on the Continent, in which the subordinate provision of dispensaries is not specially set apart for the relief of this description of suffering; and with singular advantage, from their united action, for its extensive and effectual investigation, as proved both by a permanent and a periodical body of literature. When we add that, in more than one school of medicine, and we may cite Vienna and Stockholm as proofs, instruction in the diseases of children is not left to the subsidiary position of being appended to the duties of some other chair, but constitutes the peculiar charge of an independent professorship, and the object of a separate course, we have shown sufficiently the great, and beyond question, the reasonable importance which is felt, on so many grounds, to be attached to their consideration.

The St Anne's Hospital for sick children, in Vienna, had its origin from a private institution, primarily founded by the benevolent Professor Mauthner, at his personal charges; but gradually attracting so much attention, from the beneficence and efficiency of its operations, as to procure for it the notice of the Empress Maria Anna, and of other members of the Imperial Court, who afterwards took the lead in forming an association of subscribers for its regular maintenance, and finally assured for it a conspicuous place among the public institutions of Vienna. The association is headed by the Empress, as patroness; and is governed by a committee, chiefly of ladies, as the closest in their sympathies to the tender age habitually committed to their charge. Many of these are of distinguished rank, and are aided by one or two of the principal clergy, and by several members of the legal profession, or individuals practised in matters of finance. The hospital, a recent and an admirable construction, contains at present upwards of fifty beds: and such has been the energy of its management, and the appreciation of its usefulness, that, from the original foundation in 1837, to 1852, not fewer than 62,665 cases of infantile disease have been received under its charge; either as patients within its walls, or as out-patients enjoying the benefits of a polyclinic, or dispensary, which constitutes an important part of the arrangements. Of the whole number of beds, eighteen have been founded by ten several benefactors, of whom nine, including the patroness, are titled ladies, who have bestowed sums of money for the purpose; or, in other words, who have subscribed such an amount of funds in perpetuity as will suffice to maintain eighteen patients constantly in the hospital. These beds are inscribed in the wards with the names of the founders, in honourable commemoration of their benevolence.

The annual income, collected by subscription, or arising from interest of funded capital, etc., amounted in 1852, the first year of occupation of the new edifice, to about L.1050; and the whole expenditure, for every department of outlay, was about L.860: leaving, what is rarely to be boasted of, in similar cases, as a result of even Scottish management, a balance of about L.190 in favour of the institution. The whole of the items of charge, from the salaries of the officials to the toys of the sick children, are now before us, as well as the whole of the benefactions. Among the latter, independent of the pecuniary contributions, it is pleasing to observe the offerings of not a few of the tradesmen, and others of the capital. A cutler sharpens gratuitously the surgical instruments; a draper sends a piece of linen; an ironmonger, an oven; a hozier, two pounds of worsted; a straw-hat manufacturer, a dozen of hats; a lady, 60 lb. of rice, and cake and biscuit for the Emperor's birthday; a dealer in mineral waters, a quantity of his commodity; a tinsmith, spoons and dishes, plates and basins; a dentist not only draws teeth gratuitously, but consoles one of his little patients with a *silberzwanziger;* a butcher contributes 10 lb. of hog's lard; a grocer, different kinds of tea; numerous ladies, eunonymous and anonymous, send articles of clothing; and Herr Karl Most (we should be glad of his acquaintance), house-proprietor and city-tradesman, opens his garden as a place of recreation for the convalescent children. And these acts of good will, which are but the samples of a host of others, as they are generously intended, so they are minutely and gratefully recorded. The kind-hearted Viennese, not unaddicted to luxury, is keenly sensitive, not the less, to the sufferings of others; and a visitor soon learns to appreciate the warm and active benevolence which gives a genial stamp to the prevailing character.

The Hospital at Stockholm was opened for the reception of patients in the month of February, 1854; and it is of its operations till the close of that year that we have now an account by its able and zealous resident physician, Professor von Düben. Founded chiefly through the exertions of Professor Huss, a name familiar in this country, an endowment of about L.700 by Dr Pehr Elmstedt has formed the nucleus around which its subscriptions have subsequently gathered. The management is directed by a committee of ladies, of whom the Crown-Princess Louisa is the president; and it will be observed that the institution bears her name, as well as profits by her direction. Among the other members, we gladly notice also the honoured name of Fredrika Bremer, and names of female representatives of the historical families of Brahe, Eriksson, and Piper. A polyclinic, or dispensary, constitutes part of the establishment; and the benefits distributed by both departments appear to have been already keenly appreciated by the poor mothers of Stockholm, the number of beds hitherto provided having been kept constantly occupied. The medical details communicated by Professor von Düben are full of interest, and will deserve our more full attention at an after opportunity.

It was not likely that wealthy and liberal England was to remain long indifferent, not only to these examples of charity, but to the stimulus of a necessary and fairly measured competition with this rapidly advancing department of the medical science of the continent. Accordingly, so early as 1850, preliminary steps were taken towards the establishment of an Hospital for sick children, in London; Dr West, the eminent writer on Infantile diseases, standing prominently forward as one of its advocates, among whom were numbered also the distinguished names of Locock, Clark, Forbes, Watson, Burrows, and Ferguson. Its cause was urged by all these gentlemen with so much fervour and success, that in 1852 the institution was opened, in an appropriate building; though at first with only twenty beds, which have since been increased to thirty, a hundred, we believe, being the number contemplated, when the funds shall have increased to a sufficient extent. At the commencement, the applications for the admission of patients were rare and hesitating: but confidence grew rapidly, and ere long mothers were found anxiously waiting for vacancies; while many sufferers were necessarily denied entrance, through the want of means for extending the charity. Still, at the end of the three first years, the aggregate number of in-patients had amounted to 584; and no fewer than 12,222 out-patients had received the benefits of the attached Dispensary. In the fourth year alone, the number of out-patients rose to 8087, the accommodation for the in-patients remaining restricted as before. It was part of the plan of the founders, to render this institution subservient to the important purposes of clinical instruction for medical practitioners, and of training and experience for a body of female nurses; both of whom would thus carry into the bosom of every family that practical skill which must otherwise, to a large extent, have been first sought to be acquired, if ever by the latter, in any proper sense, acquired at all, among those upon whom they were solicited, and should have been previously prepared, to bestow its ripe benefits. But it does not yet appear that the arrangements have been carried fully to this point of efficiency, especially with regard to the system of clinical instruction. We learn, however, from the report newly published, that difficulties as to the plan of training nurses have latterly been overcome; and ladies who may desire to send a nursery-maid to the hospital, for purposes of instruction, are now invited to apply to the matron. That the institution may speedily reach the fullest scope of its design, under the able guidance of its physicians, Dr West and Dr Jenner, is a wish which, on every score, we feel anxious to record.

There is thus, in the meantime, evidently still space for us, in as far as our native Schools of Medicine are concerned, to assume a leading position, in point of efficiency if not of date, in this interesting sphere of labour. Doubtless the cultivated physicians of Edinburgh will be found eager, on this point, to ratify the opinions already brought into action elsewhere, and would be willing to give the project the indispensable support of their sanction and assistance. But into what distinct form is it possible to shape our prospects, when we take into nearer view the existing condition of the great medical charities already established amongst us? With our excellent Infirmary, especially, the centre of so much active charity, and the source of so much admirable instruction, involved in uneasy struggles to prevent the curtailment of its usefulness, how can we contemplate bringing another institution into the field, to be its ally, indeed, and complement in the province of science, but its rival in demands upon the public bounty? Assuredly, if we could discern no means of advancing the one, unless such as must necessarily prejudice the other, we should hesitate long before urging the project, however important its aims, and however apparent its necessity. Meanwhile, to set apart wards for children in the Infirmary itself would, even if admissible otherwise, be no adequate provision, and similar arrangements have been found inexpedient elsewhere. But to judge fairly of our prospects of success, in establishing a separate Hospital for the Diseases of Children, in Edinburgh, we must mark more definitely the extent of the demands which it is likely to entail upon us, and show more distinctly the nature of the benefits which it may be moulded to produce, and the mechanism required for their development.

Let us imagine, in the first place, the possession of a well-considered plan, the joint production of a physician who has seen, or will examine, the best establishments of the same description existing elsewhere, and of an architect, sufficiently master of his art to be able to associate beauty of design with fitness of parts. The latter must be one who can keep in view, that there ought to be one architecture for the palace, with its pomp and majesty, and another for the hospital, with its grace and meekness; and that each may have its appropriate charm, the one as the expression of power, and the other of charity. He will, therefore, not cumber his building with excrescences, of which, as we cannot divine the use, we are constrained to feel the incongruity, and thus, in the best æsthetical sense, and in a structure so devoted, the extravagance and the deformity. He will shun as much a flaunting and costly picturesque on the one hand, as a bald and meagre severity on the other. The aspect of an hospital must be that of a sober, chastened cheerfulness, but never of gloom. Just as little should we read in its general air, and in that of its adjuncts, as actually inscribed over its portal, the

"Lasciate ogni speranza, voi che 'ntrate!"

It is evident that a building, constructed on such principles, will distinguish itself more by the elegance and simplicity of its outline, than by the sumptuousness of its ornament; and may gratify even an uneducated eye, by its unpretending union of grace and congruity. Openly situated, surrounded by trees and parterres for evergreens and flowers, secluded yet not sombre, not more than two stories in height, and with ample windows, it will silently impress the broken spirit of the sufferer, and place him in the midst of the most favourable influences, mental as well as bodily, for the recovery of his health.

Accommodation for about sixty patients, whose ages should be within the limits of from two to eight years, would suffice for the purposes of medical education in such an establishment; with the essential addition, however, of proper provision for the requirements of a Dispensary, with its ambulatory clinic, to constitute an integrant part of the design: the practice of the latter including patients of the tenderest age, such as could not prudently be separated from the mother, and thus supplementing the special description of instruction which can alone be given with success within the walls of an hospital, while presenting opportunities, at the same time, for bringing the student into more early and direct contact with current diseases, and with the more ordinary conditions and influences affecting their treatment, in the way in which he must be prepared to encounter them in his subsequent practice. The wards of the hospital might, with us also, afford valuable facilities for the education of a body of pupil-nurses, whose services subsequently might be eagerly acceptable in the families of the wealthy, or generally among the community, where the want of properly instructed females of this class has been severely felt. To administer duly to all these objects, the building should contain three physician's general wards, besides two seclusion wards for contagious diseases; a surgical ward; a convalescents' ward, and convalescents' day-room; a set of dispensary apartments, with separate access, consisting of patients' waiting-room, with laboratory and surgery, and consulting-rooms for physicians and surgeon; a room for museum and library; a pupil-nurses' ward; bath-rooms; a children's clothes store; a pathological-room; dead-room; rooms for resident physician, and for house-keeper; kitchen and washing-department; and heating and ventilating apparatus, with reference to which we may suggest that the method carried into execution by Léon-Duvoir, for the Neckar Hospital in Paris, would appear to deserve attentive consideration. The whole of the wards should be of ample dimensions, so as to afford at least a thousand cubic feet of space for each of the inmates: and the complete appurtenances, including the amenities of garden and play-ground, should correspond to the fullest requirements for such an institution, according to the most recent and enlightened notions, that we may have a model of efficiency, whether for treatment or for tuition. The cost of such a building, under the hands of a designer such as we have imagined, ought not, from what we know has been executed elsewhere, to exceed about six thousand pounds. The ordinary annual expenses, for every department of outlay, judging from data also before us, and reckoning upon an average of fifty beds occupied, should be within the limits of about twelve hundred pounds. We could have willingly enlarged here on the staff of physicians, surgeon, clinical assistants, clinical students, nurses, and servants, with the arrangement of their duties necessary to give effect to the scheme, and value to its results, but our space, for the present, precludes the attempt.

Are we to believe that the establishment of such an institution, occupying a position in reference at once to our civic charities, and our medical school, so beneficent in its immediate objects, and so comprehensive in its remoter aims, is to be regarded, in the present conjuncture at least, as something too visionary for serious contemplation? We venture to hope not. Why should we admit, that what has been done by an Empress in Austria, or a Crown-Princess in Sweden, may not be accomplished by a Queen in this country, or by a Princess Royal looking tenderly back at the age which she has so recently left; and that in behalf of the ancient capital of those kings from whom they derive their nearest descent, and which can now profit so little by the direct presence of royalty and a court? Why should the female aristocracy of talent and of wealth be known to have zeal and sensibility enough for such a work abroad, and be supposed to be hopelessly deficient in them here? It is no part of our faith to assent to this; although we profess to have neither power nor credit to set the necessary machinery in movement, or to make a successful appeal. But, laying aside this, have we no other accessible resources? Could the class of institutions, so amply, if not redundantly, provided for in this city, whose object is the education and maintenance of the children of the poorer citizens, not find themselves justified, either all jointly, or one or more according to their means, in considering whether, under this head of maintenance, the health and life of those whom we have seen to be subjected to such destructive influences might not be held as included under their care, and that beyond the fortunate few immediately sheltered under their roofs; just as, with reference to the associated department of education, which can but rank as the embellishment, their utility has been expanded by such deviations from the original plans as the Heriot Foundation Schools? Or could any portion of the Fettes fund, still only prospectively appropriated, be devoted to this form of charity, of all others the least questionable, and the least susceptible of abuse? Or perhaps the honour of supplying the want, for the supply of a real want to science and humanity infers honour, may be reserved for the trustees of a late millionnaire, Mr Fergusson of Cairnbrock, who is said to have placed L.50,000 at their disposal for charitable uses; which they may not be unwilling to consecrate to an object, the benefits of which must thus extend so far beyond its original application, and redound to the advantage, not only of a wide class of sufferers, but of an educational establishment which stands as our most conspicuous monument among foreign countries, and of the value of those lessons which it is its privilege to diffuse. A system of hospital tuition, which serves as the foundation of a great medical school, preparing practitioners for our domestic and public service, and attracting pupils from the remotest of our dependencies, is not merely a local, or even a national, but an imperial institution.

There remains still another benefaction, that of Chalmers, the management of which has been intrusted to a body so eminently intelligent, that we may confidently anticipate that, in its special allotment, the most prudent regard will be manifested towards the more clamant wants of the time, or of coming times, in as far as provision for these can be rendered strictly accordant with the design of the donor. To ordinary interpretation, a bequest for the erection and endowment of an hospital "for the sick and hurt," infers no limitation as to the particular age of the objects of its bounty; and may as easily be restricted to the youthful as to the adult periods of life, if the best, and least occupied, sphere for its activity can be shewn in the one direction rather than in the other. Assuredly, a Chalmers' Hospital for the diseases of adults, as an independent institution, might come into disagreeable, and even sometimes, were it only incidentally, into injurious collision with our Royal Infirmary, in which, not the less, it would be injustice to its founder to merge it; yet it could never rise into rivalry with the older and more extensive charity, in its double capacity, and must thus bear continually the mark of subordination and inferiority. But a Chalmers' Hospital for Sick Children would secure at once the stamp of a peculiar identity, would fill a void effectively instead of competing hurtfully, and would assume a foremost and signal rank as a commemoration of its founder. Whether these motives ought to weigh with the Faculty of Advocates, so as to induce them to found an institution for which the funds at their disposal appear to be sufficiently ample, or whether the conditions of the bequest confided to them limit more absolutely its destination, are points which, under their consideration, will receive a competent decision.

Meanwhile, the question can be one only of time. We cannot, in the cause of science and humanity, fall behind the rest of the world, and not suffer from the neglect. Humanity has its urgent plea with us, as with other cities, as shewn by our statistics: science has its equal plea everywhere, and to become insensible to it is to resign our pre-eminence. All recent changes in medical education have taken the proper direction: not to induce a congress of students by slighter studies and easier honours, but to raise the value of a degree by higher requirements and severer tests. Whether we interpret the signs of the period, or its necessities, the establishment of a better system of investigation and instruction for the diseases of children is now a matter in which, in this country, we must either aspire to lead, or be constrained to follow.

Diseases of the Heart: their Pathology, Diagnosis, and Treatment. By W. O. MARKHAM, M.D., Assistant-Physican to St Mary's Hospital, etc., London. Small 8vo, pp. 346. 1856.

IN the preface to this work Dr Markham tells us that he has endeavoured to state, in clear terms, the knowledge which we possess of the pathology and the treatment of acute cardiac diseases, convinced that the one is essential to a right understanding of the other. It is refreshing to meet with a London practitioner who, at the outset, takes this high ground, and who never attempts to push the most absurd theories down our throats under the disguise of a "practical man." On the contrary, instead of the certain cures proposed by such persons, and which, almost invariably, are determined by experience to be either useless or injurious, we have a candid confession of the imperfections of the medical art, and a careful discrimination of the effect of remedies, which, we are satisfied, will recommend this book to every judicious practitioner of medicine. Some of the author's observations we propose to condense, for the information of our readers.

With regard to pericarditis, he observes, that a skilful diagnosis has enabled us to trace most anxiously, from day to day, and with surprising accuracy, the progress of the malady, and we can even sometimes anticipate its attacks. Scarcely sooner can pathology demonstrate the existence of the inflammation to the eye, than does our diagnosis reveal it to the ear. If ever disease demanded the physician's earnest care, this surely does. What, then, has medicine to oppose to this destructive malady? Some few years gone by, the practice was, to meet the violence of the inflammation by the extremest antiphlogistic measures; the lancet was plied with a most unsparing hand, and with the most unhesitating faith in the propriety of its use. But where are the believers in, or imitators of, such a practice now? This heroic and *certain* method, as it was called, of arresting the destructive agent—of *extinguishing* the disease—has been convicted of error, and condemned by later authorities as "uncertain and very dangerous." Again, "After blood-letting, rapid induction of the mercurial action is of the greatest consequence," wrote an authority, in a most unhesitating style, some fifteen years ago. But now, we find one of the most observant and practical physicians amongst us, admitting that the firm faith, which he himself once reposed in the efficacy of this remedy, had been undermined by the truth-telling effects of further experience. In short, "the errors and absurdities," says Dr Markham, "into which men have been led through this hastening to be wise—the fallacious and extraordinary proceedings in practice it has involved them in—he who is desirous of learning will find recorded on every page of the history of medicine. By thus casting dust in the eyes of others, and perverting our own wisdom, we raise up positive barriers to the advance of true knowledge; for now the mists and delusions which our faulty haste has generated, must be swept away before the honest face of the simple fact can be made available to light our slow steps along the difficult passes of medical knowledge."

It is an undoubted fact, that different methods of cure have been adopted and repudiated, at various periods, by different practitioners equally skilful in the appropriation of the objects of medical study; and consequently no one can, rightly speaking, have firm convictions in the efficacy of any method of treatment yet proposed. "Yet," says Dr Markham, "the man of action must act, even when struggling through the mist of errors; but I would infer, that he must act reasonably, that is, with a full acknowledgment and appreciation of the difficulties which bestrew every step he takes; cautiously, and with the sentiment, that each act is an experiment, and that the experiment may be unhappy, as well as happy in its results, and that it may be for evil as well as for good. The very discordant opinions which equally honest and equally skilled observers maintain—observers not living in separate ages, or in different countries, or in separate cities, but exercising their art upon the same disease, under the same roof, in the same public hospitals—must have a meaning. Is it not one which is, oftener than we care to confess, responded to by our consciences at the bedside of the patient?"

Dr Alison, in the pages of this journal, has endeavoured to reconcile some of this discrepancy, by stating, that diseases change their type, and especially, that inflammations are different now to what they were in the time of Cullen and Gregory. Of this theory, Dr Markham asks, where is the proof? How must we proceed, if we would prove the dissimilarity between pneumonia of to-day and the pneumonia of twenty years ago? evidently by the comparison of the history of the science now with its history then. But he must be a bold man who would attempt to work it out by the aid of facts. He exclaims, "Differences in type at different epochs! Why, how many differences in type does not the same disease present at the same epoch? What are all the different modifications in symptoms which disease presents to us, except changes in its type, and changes, indeed, chargeable to the influence of age, sex, climate, and the thousand ever-varying accidents which beset the life of man? Are we to believe that the human body has so changed its condition, or that diseases have so totally altered their nature, as therein to find an explanation of the fact of the wholesale blood-lettings which characterized the treatment of disease in the last generation, and the almost entire abstinence from blood-letting which characterizes the treatment of the present race of practitioners?"

This question is very strongly put; and, notwithstanding our respect for the physician who has put forth the theory of change of type, we agree with the author in thinking, that everything we know of pathology, and all that we have heard of modern, as distinguished from a former practice, negatives the supposition. To argue that diseases change their type to meet the ever-varying caprice of medical practice, would, it seems to us, be an abandonment of everything that is positive in medicine. We do not see that the race has deteriorated in modern times; we do not acknowledge that the cholera, or the use of tea and potatoes, or travelling by railway, has, within the memory of man, radically changed the human constitution. On the contrary, we observe, that whilst some new diseases, as cholera, have appeared among us—that whilst others, as plague, have disappeared; and a third class, like fevers, do present different forms at different times, these results are evidently owing to external circumstances operating on the body; whereas inflammation, tubercle, morbid growths, and other organic diseases, have been known from the remotest ages, and are evidently the same to-day as they were then. It seems to us as reasonable to say, that a bone, when fractured, heals by a different process now to what it did formerly, as it does to say, that inflammation has so changed its nature, that once it required the loss of quarts of blood to arrest it, whereas now it stops of itself. No; there must be some other cause; and this, we have no hesitation in saying, is to be sought for in our improved knowledge of diagnosis, and of the pathology of disease.

The preface of Dr Markham, to which we have hitherto confined our attention, is worthy the attentive perusal of every practitioner. In the introductory chapter which follows, we find the leading idea which governs the whole work. It is developed in the following passages:—

> As our views of pathology have been widened by more extended observation, local changes, local, so called idopathic inflammations, have become less and less recognised by us, as *per se, the diseases.* We have been taught to look beyond these local manifestations of disease; and, in doing so, find reasons enough to believe, that, in the very great majority of instances, at least, what we have been accustomed to consider, as simply the products of local inflammatory action, are in reality but the partial consequences of a wide-spread influence; having relations to, and connections with, other disorders of structures, situated perhaps at distant parts of the body, and to which, apparently, they bear no immediate analogy in their characters.—Pp. 5, 6.
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> Endocarditis, for example, connected with rheumatic fever, and endocarditis connected with endemic disease, may yield to physical diagnosis precisely similar indications of their presence; but how utterly different in the two cases do the particular inflammations become when we search out and find their *general* connection! how different the prognosis, how different the treatment, how dissimilar the native character of the diseases.—P. 7.
>
> Modern pathology, again, has taught us the true meaning of hypertrophy of the heart. The time has been when the whole efforts of the physician were exerted in the attempt to reduce this enlargement of the organ; but now, we understand, that so far from being the special object against which to direct our remedies, it is an actual provision of nature, brought into action in order to supply our unnatural need.—P. 9.
>
> It would be quite out of place here to linger over the immense advantages which medicine has gained through the discovery of the physical diagnosis of internal diseases. The study thereof is now an essential part of the physician's education. The great accuracy with which it often guides us to the seat of the

disease, and the insight it gives us of its nature, have rendered it a most instructive study,—p. 11; but, it is satisfactory to be assured, that great skill in the practice of physical diagnosis is not requisite, to arrive at such an amount of knowledge as shall suffice to indicate surely, to the observer—at least, in the very large majority of cardiac diseases—that the heart is affected. That degree of acute observation which pretends so nicely to discriminate, during life, all the minute differences of diseased structure, the exact positions and relations of them, which, after death, when they become the direct object of vision patho-ogy points out to us, is certainly not necessary to guide the hand of the practiioner.—P. 13. At the same time, all the leading features of heart diseases are nade known to us by physical diagnosis; and, without its aid, could only be inistinctly guessed at.—P. 14.

In cardiac inflammations, we have two facts to deal with; we have the specific action, and the local inflammatory action thereby excited. Now, the ordinary inflammatory action we may hope to meet, by ordinary antiphlogistic treatment, modified by attendant circumstances; but the specific action producing it, the cause which throws the malady on the heart, we know not how to deal with, for we know not what it is, nor do we even know of its existence, until the ordinary signs of inflammation indicate the fact; nor has experiment in treatment yet enabled us to neutralize its action.—P. 18.

But whatever obscurity may involve the treatment of acute cardiac diseases, none happily attaches itself to that of their chronic forms. There are, indeed, no class of disorders in which the skilful physician can afford greater temporary relief to the distresses of his patient. This he does by ministering to the functional derangements, by relieving the different organs and parts from the mechanical pressure exerted upon them through the impeded circulation, by sustaining the weakness of the heart, and regulating its action.—P. 19.

These passages afford an insight into the general views of the author, which are carried out with the utmost tact and skill, in his description of individual diseases of the heart. Into these it is not our intention to follow him. We need only say, that the practitioner will find in this volume the most succinct, the most accurate, and the most judicious account of these diseases which has yet been published.

We have a word or two to say about the treatment, however, which is evidently more influenced by authority, and the opinions of others, than we should have anticipated from the introductory observations, and clear views of pathology, possessed by the author. Here we find that in cases where the use of a remedy is doubtful, he alludes to the general opinion of our leading physicians, as constituting the best and safest of guides to direct the practitioner (p. 92). His own experience of the benefits of mercury "seems fully to warrant the conclusion, that the actual influence which the remedy possesses over the disease has yet to be shown" (p. 98), still, "the concurrent testimony of so many excellent practitioners in its favour, scarcely justifies us in abstaining from its use" (p. 96). This uncertainty in entirely breaking off from the remedies so long employed by authority, even when directly opposed to a sound pathology and direct experience, is indicative of the present transition state of practical medicine. Most well informed men, of Dr Markham's standing, hesitate before passing the Rubicon which separates the empiricism of the past from the more scientific knowledge of the future. It is clear, however, from the greater caution now everywhere employed in the use of heroic remedies; the prevailing opinion that for many years treatment has been too active, and that without discarding our old modes of action, they should only be used sparingly—that a great change has been gradually effected in the professional mind. None but men ignorant of pathology now talk of knocking down inflammations with blood-letting, or with mercury. Indeed, why these remedies are employed at all has, to use the words of Dr Markham, "yet to be shown." But if, after the long experience we have had of enormous bleedings, and frightful salivations, these great experiments have ended in the conviction, that their use is *not yet* demonstrated; the inference obviously is, that their proper employment or discontinuance has yet to be discovered by a more enlarged experience.

In conclusion, we cordially recommend the present work of Dr Markham to the attentive perusal of every medical practitioner, as the best compendium of our knowledge concerning diseases of the heart with which we are acquainted. It is, in addition, the most perfect exponent of the views of that pathological school of medicine, which is now everywhere struggling into notice, and which must, ere long, be paramount in the practice of our art.

Consumption: its Causes, Prevention, and Cure. By THOMAS BARTLETT, M.D., 12mo. London. 1855.

SUCH is the title of an elegant little volume, the external appearance of which is sufficient to indicate the class of readers the author specially intended to address.

It is not, however, made a vehicle for puffing, as too often our popular monographs are; and, with the exception of a chapter entitled "Stethoscopic signs of Consumption" it is written in a style calculated to instruct the general reader. Dr Bartlett has some good remarks on importance of "pure air" in the prevention of the disease; and, from a perusal of his chapter on the choice of a climate for the phthisical invalid, we have derived much pleasure.

Part Third.

MEDICAL NEWS.

THE MONTH.

Medical Legislation.—Since our last, Mr Headlam's Bill has been referred to a select committee of the House of Commons; and a rival bill has been brought forward by Lord Elcho, which, *pro forma*, has been read a second time with a view to its being referred for consideration to the same committee as Mr Headlam's. The committee consists of Mr Cowper, Mr Headlam, Mr Brady, Mr Crawfurd, Sir W. Heathcote, Mr Napier, Lord Robert Grosvenor, Mr Black, Colonel Dunne, Mr Bell, Mr Strutt, Mr A. Hastie, Mr Howard, and Mr Percy. This is a very fair committee, especially when it is considered what rabid nonsense has recently been talked in the House on medical subjects. Many will regard the presence of Lord Robert Grosvenor in the list, as suspicious, but, on the whole, it is perhaps expedient, that homœopathy, and other forms of delusion, should be represented, in order that whatever finding the committee pronounces, should bear the impress of general, and not sectarian, authority.

Lord Elcho's Bill differs from Mr Headlam's, chiefly in its retaining the licensing bodies presently granting diplomas, without proposing to add to their number; and in the Crown selecting quinquennially a council for the regulation of curricula from lists to be made up by the existing licensing boards. The proceedings of the committee are to be strictly private, and it is evident from the brief period that the present session has to run, that if what the committee has to do, "be not done quickly," medical reform may not be overtaken by the present Parliament.

It is one unfortunate result of the recent wranglings about medical politics, that a feeling has, in some quarters, been engendered, that the State should not, in any way, interfere with medicine, and that the public should be allowed to select their medical advisers just as at present they select their gardeners, their bakers, and their brewers. This idea is founded on a misconception of the theory of free trade, on which it professes to be based. Any scheme of medical legislation that did not leave the subject entirely at liberty to choose his physician, should have no support from us; and we simply ask for the practitioners of medicine the same facilities for intelligent selection that the public seems determined to have for regulating their purchases of the drugs and other substances prescribed by these very physicians. For example, champagne, brandy, and arrow-root, are all well-known articles of exotic produce; but it is well known that we have indigenous imitations of the three, and it is open to the public to have the home or the foreign compound exactly as suits their taste; but if a person is willing to pay for champagne, he should be protected from being cheated with gooseberry cordial; if he wishes brandy, he is not to be cozened into the purchase of treaclised whisky; and if he desiderates arrow-root, is it fair that potato-starch should be palmed upon him? In like manner, if the British subject chooses to believe that his ailments may be cured by homœopathic globules of nothing, by wet towels, by sand-paper applied to the spine, or by meditative perusal of such volumes as the *Silent Friend*, by all means let him do so. This is a free country, and assuredly we have no desire to restrict its freedom. But as there is a class of the community, who rightly or wrongly are seriously of opinion that the scientific study of the human frame, in health and disease, gives a man superior qualifications for treating the "ills that flesh is heir to," it is but reasonable that this class should have the means of discriminating such qualified persons from the herd of self-dubbed doctors and apothecaries, who, assuming the conventional title, float into practice by the aid of a reputation which belongs to others and not to them. In cases of mal-practice, both authorised and unauthorised practitioners should be amenable to the law; and, in America, where medicine, like religion, is allowed to take its own course, the courts have their whips for the unskilful diplomatists who ought to know better, and their scorpions for the quack who cannot know right from wrong. Rather than that our present anomalies should longer degrade medicine, we would prefer the American system of non-interference; but it is because we think that there is room for a modified legal system of medical order, that we would have the subject pressed on the legislature, even although nothing should be accomplished by the committee presently sitting.

We regret to hear that the Lord Advocate's Nuisances' Bill, to which we referred last month, is to be withdrawn.

VACCINATION.—It is scarcely creditable to our civilization that the old objections to Vaccination should be revived (of all places) in the House of Commons. But it is consolatory to think that the lucubrations of "John Gibbs," and the oratorical fervour of Dr Michell, weighed but as dust in the balance when the Vaccination Grant came to be discussed. Lord Elcho, when in office, contemplated a Compulsory Vaccination Bill for Scotland, and we trust that his Lordship will be induced to bring it forward at an early period.

PALMER'S TRIAL.—The trial of Palmer has been fixed for the 14th May, and is to take place before the Central Court in London. A nice question has been agitated regarding the right of the prisoner to obtain further information as to the tests employed by the Crown witness, Dr Taylor, to prove the poisoning. The Home Office, the Queen's Bench, and the Attorney General, have severally declined to comply with the request, on the ground of its being without precedent.

WORKING OF THE REGISTRATION ACT.—A letter from a correspondent will be found in another page, relative to the difficulty which medical men occasionally experience in finding out the district in which deaths should be registered. When a new measure, imposing onerous gratuitous duties on a professional class, is introduced, it is surely the duty of the officials charged with the superintendence of the scheme, to afford every facility for the discharge of their statutory duty. And to prevent the recurrence of similar difficulties, the Sheriff-clerk, or some other local officer, might have lists defining the whole registration districts in each county, similar to those provided in large towns for the convenience of practitioners and registrars, and of these duplicates could also be kept by the Registrar-General.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXXV., 1855-56.

March 19*th* 1856.—WM. SELLER, M.D., President of the Society, in the Chair.

I. CASE OF CANCER OF THE UTERUS. BY DR J. MATTHEWS DUNCAN.

Dr Duncan exhibited a preparation of an interesting specimen of cancer of the uterus, in which the disease had gone so far as to remove nearly thé whole body of the organ—the fundus itself being so corroded in the middle, as to appear to be split into two halves. The peritoneal cavity was preserved unopened both before and behind the uterus, by adhesions anticipating the progress of the cancerous ulceration and destruction. This latter had produced a large communication between the bladder and upper part of vagina or uterus. The rest of the bladder was healthy. The rectum was quite healthy. The case was specially interesting to Dr D., as he had, two years previously, excised the cervix uteri for reasons he would not then dwell upon. The cancer was epithelial. The operation restored, almost completely, the woman's health for nearly a year, arrested the discharges, checked an almost constant diarrhœa, and enabled the woman to sit, a position she could not till then, for a long time assume with comfort. During the healing of the wound (which was for some time complete), the actual cautery was applied more than once to the cervix. The disease, however, returned, and carried her off, two years after the operation.

Dr W. T. Gairdner remarked that he had lately seen a case of cancer of the uterus, in which the uterus had completely disappeared. On dissection, it was found that all that remained of the organ was a piece of dead cellular tissue. The characteristic symptoms of cancer had continued to be manifested to the end.

II. CASE IN WHICH THE TRICOCEPHALUS DISPAR WAS FOUND ON DISSECTION. BY DR RUTHERFORD HALDANE.

Dr Haldane exhibited some specimens of the *tricocephalus dispar*, which he had lately found in the cœcum of a boy who had died, after operation for strangulated hernia, in the infirmary. This entozoon was very rarely found in Edinburgh, although it was reported to occur very frequently elsewhere. They were found in considerable numbers of both sexes—the males, which are readily distinguished from the females, by the circumstance of the posterior or thick part of the body being in the form of a spiral convolution, not being, as is generally the case with intestinal entozoa, less numerous than the females. The ova, taken from a female, were exhibited under the microscope, and presented a very striking resemblance to the cysts of the *trichina spiralis* of muscle, being oval, or rather lemon-shaped, having a small protuberance at either end of their long axis, of a yellowish colour, and filled with granular matter.

The *Chairman* remarked, that the occurrence of this entozoon had been always regarded as very rare in Edinburgh. In Dublin, and elsewhere, it was found much more frequently, it was formerly known as the *trichuris hominis*—the hair-like head having been supposed to be the tail.

III. ON JUGULAR VENESECTION IN ASPHYXIA, ANATOMICALLY AND EXPERIMENTALLY CONSIDERED. BY DR JOHN STRUTHERS.

The object of Dr Struthers' paper, which was illustrated by preparations and drawings of the valves in the cervical veins of the human subject, was to ascertain whether distension of the right side of the heart could be relieved by opening the external jugular vein in the human subject. The experiments of Drs John Reid, Cormack, and Lonsdale, had satisfactorily shown that, in the lower animals (dogs, cats, and rabbits), the right side of the heart could be thus disgorged so as to restore its action, which had been arrested by a simple mechanical cause, over distension. He considered that the indication of restoring the heart's action by jugular regurgitation, had not received that attention which Dr Reid's suggestive paper demanded for it. *Dr Struthers* described the anatomy of valves which he had found in the cervical veins, as well as those usually alluded to as present in the external jugular. A pair of valves at or within the mouth of the internal jugular vein; a pair in the subclavian vein immediately external to the point of union with the external jugular; a pair at or within the mouth of the external jugular; a second pair in the course of the external jugular, at the upper end of its sinus, or large portion, about 1½ inch above the clavicle, and various lesser valves at the mouths or within the tributaries of the external jugular. The varieties, and relative position of the two portions of each pair of valves was described, as he had found them in numerous careful examinations. With the view of ascertaining whether regurgitation could take place notwithstanding these valves, Dr S. performed a series of experiments on the dead subject. A pipe was fixed in the femoral vein, and tepid water thrown freely upwards. The general result was, that the external and other jugular veins very soon became distended, and that when the lancet opening was made, at about an inch above the clavicle, the fluid regurgitated freely. At first a jet came, emptying the distended sinus, and then it continued to flow, never in a jet, but in an active stream across the neck, escaping by the wound with a wriggling motion, evidently due to the obstruction offered by the valve which it had overcome. Care was taken to ascertain that the fluid came by regurgitation, not from above; but, if allowed, it also came freely from above, having ascended by the internal jugular. The introduction of a probe so as to hold aside the guardian valve of the external jugular did not much accelerate the regurgitating flow. When the catheter was introduced, however, the fluid came very freely by it—as freely as from a distended bladder. It is easy to introduce a common male catheter to the vena cava or right auricle, by directing it backwards and inwards, as well as downwards, from the point of venesection. But as soon as the catheter has entered the subclavian vein, the fluid comes as freely as when it is pushed farther. As soon as the point of the catheter is withdrawn into the external jugular, the fluid ceases to come by it. In one subject the fluid could not be made to regurgitate. This was at the time attributed to the circumstance that the cranium had been opened for the removal of the brain, the fluid pouring out by the cranial sinuses; but, on dissection, two pairs of valves were found in the external jugular below the lancet opening, besides the pair above it, as usual. Regurgitation seems to be prevented by two pairs of valves, though one pair may be overcome. In these experiments the veins of the arm did not become distended, and no regurgitation took place from a lancet-opening in the axillary vein, although afterwards it was seen that only two pair of valves had stood in the way, between the heart and the opening. By "pair," Dr S. meant the two separate portions which act together as one valve. He (Dr S.) drew the following conclusions:—1. No venesection can be of any use in asphyxia, except in the neck, on the principle of regurgitation; which, however, may also relieve congestion of the head. 2. That, besides warmth and friction, and (the most simple and effectual of all means) continued artificial respiration by alternate compression and relaxation of the sides of the chest, jugular venesection should be tried. 3. With reference to Dr M. Hall's recent recommendation of the prone position, to prevent the tongue falling back and closing the glottis, the question occurred—Does the tongue fall back, under passive circumstances, in the supine position? Is not the closing of the superior glottis, under all circumstances, a muscular act—both the carrying down and back of the tongue and epiglottis, and the lifting upwards and forwards of the larynx? The mouth, however, should be cleared of frothy mucus. 4. That to obviate the evident risk of entrance of air into the veins, the wound should be closed as soon as regurgitation is about to cease, and artificial respiration be then commenced; the jugular venesection having been performed as early as possible.

(*It is expected that Dr Struthers' Paper will appear in full in a future number of the Journal.*)

Dr W. T. Gairdner had been much interested in the paper of Dr Struthers, which he believed to be not only important in its anatomical and physiological aspects, but to have various bearings on medical diagnosis. Every one was familiar with the pulsation in the jugular veins, as an indication of tricuspid regurgitation in cases of disease of the heart, but it was not so generally known that there might be evidence of considerable regurgitation through the right side of the heart, in cases in which there was no appreciable pulsation or enlargement of the veins in the neck. He had often noticed a murmur over the right ventricle, such as he believed to be referrible to nothing else but tricuspid regurgitation, without any jugular pulsation; and since he became acquainted with the existence of the venous valves described by Dr Struthers, as so constantly present at the root of the neck, he had had no difficulty in explaining such cases. It was clear that two elements were necessary to give rise to venous pulsation in the neck, depending on the systole of the ventricles. The first was the incompetency of the tricuspid valve; the second, the incompetency of the valves closing the jugular veins at their cardiac end, and he was inclined to believe that either of these conditions might occur apart from the other. Tricuspid incompetency was usually the consequence of a morbidly dilated right ventricle, with or without an enlarged auriculo-ventricular orifice. He thought, however, that Dr Wilkinson King's doctrine, referred to by Dr Struthers (which was originally the doctrine of John Hunter), was a very erroneous one, so far as it referred to the normal or nearly normal state of the parts. It did not, by any means, follow, that because the tricuspid valve was incompetent in the dead heart, that, therefore, it was incompetent, or scarcely competent, in the living. Indeed, the action both of the mitral and tricuspid valves depended so much on the state of vital elasticity and contraction of the ventricle, that any inference from the dead to the living heart, required large qualification. He (Dr G.) believed that the so-called "safety-valve function," only came into play when the ventricle was decidedly altered, both in form and capacity, by dilatation; and he thought, notwithstanding the general opinion to the contrary, that tricuspid regurgitation from this cause was very often attended by murmur. The frequent coincidence of tricuspid regurgitation with incompetency of the venous valves, was evidently due to the fact, that the latter were apt to give way, as Dr Struthers had pointed out, under abnormal pressure; in short, they, too, had a "safety-valve function." But the degree of pressure necessary to effect this, was evidently very different in different cases. The incompetency of the venous valves, apart from a similar condition of the valves of the right side of the heart, was probably rare. Dr G. had remarked, however, that in a gentleman with whom he was well acquainted, there was a very remarkable sinus-like condition of the proximal end of the jugular vein in the neck; and this, without pulsation or any indication whatever of heart disease. On making this gentleman hold his breath for a short time, a soft compressible swelling appeared above both clavicles, not less than the size of a turkey's egg. It was attended with no inconvenience, and subsided the moment free respiration took place. The patient (if so he might be called) enjoyed remarkably good health, except that from boyhood he had been very short-breathed on walking fast, or on going up a hill. There was not the slightest reason to suppose that this curious defect depended on any seriously diseased condition either of the lungs or of the heart, he believed it was simply a deficiency, either congenital or acquired, of the venous valves.

Dr Matthews Duncan was very much interested in the subject which had been so ably presented to the Society by Dr Struthers. The paper reminded him of the views and practice of his old teacher, Dr Kilgour of Aberdeen, who had been accustomed to have recourse to small venesections, in some cases of apparently impending death from disease of the heart. Dr K. laid great weight on the proceeding in such cases, in order to relieve the embarrassed circulation. He generally opened a vein in the arm, and with very noticeable advantage to the sufferer. In the so-called asphyxiated condition of new-born children, accoucheurs were always ready to relieve the overloaded heart by cutting the cord, and allowing some blood to escape. This practice was quite in accordance with the views of Dr S., if the communication between the cord and right side of the child's heart were free from valvular or other obstruction.

The Chairman inquired if the experience of any of the members of the Society supplied any evidence in favour of the practice recommended by Dr Struthers. Dr S. had adduced very satisfactory theoretical grounds upon which to found his views, but it would be interesting to know if the proceeding was safe and beneficial in the living subject.

Professor Dick of the Veterinary College, remarked, that some of the facts of veterinary practice were quite in accordance with the views of Dr Struthers. It was a very common practice, in destroying horses, to have recourse to blowing air into the veins, with the usual speedy arrest of the heart's action; but he had observed that, if the horse be let alone, and the aperture into the vein be left open, so as to allow of the escape of blood, the symptoms abate, and there is every appearance of him recovering, while, if it be kept closed, he very speedily dies. He was quite familiar with the presence of valves in the veins of the neck in the horse—tricuspid valves were found at the root, and sometimes also at the top of the jugular veins. The horse was very easily killed by the forcible admission of air into the veins. They seldom survived beyond a minute from the operation being performed. He found the air from three inspirations generally sufficient completely to extinguish life.

Dr Struthers, in reference to Dr Gairdner's interesting case, remarked, that there was naturally an enlargement or ampulla on the lower part of the internal jugular vein, as had been remarked by various anatomists; but the true reason for it did not seem to have been recognised, viz., the existence of valves inside; as there is a sinus or ampulla opposite every valve, as part of the design to secure mechanically the closure. In reference to Dr Duncan's important observation, Dr S. remarked, that umbilical regurgitation in the fœtus would have a precisely analagous effect to jugular regurgitation in the adult, and there were no valves to be overcome between the right side of the heart and the umbilical vein, at least the Eustachian valve would not effectually obstruct the regurgitation.

IV. NOTE ON THE OCCURRENCE OF ARTERIAL OBSTRUCTION IN THE HORSE, IN CONNECTION WITH PARALYSIS AND MUSCULAR ATROPHY. BY THE LATE JOHN BARLOW, PROFESSOR OF ANATOMY and PHYSIOLOGY IN THE VETERINARY COLLEGE.

(This note, with a biographical notice of the author, was read by the Secretary, Dr W. T. Gairdner. The communication will appear in the next number of the Journal. The preparation, belonging to Professor Dick, illustrative of the subject of the note, was exhibited to the Society.)

Professor Dick had long been familiar with the occurrence of obstruction from fibrinous formations in the arteries. He had observed it particularly in the metacarpal artery. Mr Barlow, however, had first noticed the adhesion of the fibrine to the inner coats of the artery, and traced it as a cause of disease. Professor D. had observed it frequently in fatal cases after operations, and also after injuries about the fetlock and the tongue. He had been accustomed to regard it as a consequence of these operations or injuries, but in the case before the Society the paralysis and muscular atrophy was obviously the result of the formation of the fibrine and the consequent obstruction to the circulation. He has no doubt that such cases are to be frequently met with, and his assistants at the Veterinary College are now on the watch for their occurrence.

April 16, 1856.—Wm. Seller, M.D., President of the Society, in the Chair.

I. CASE OF LUMBRICUS, ATTENDED WITH HEMOPTYSIS. BY ROBERT OMOND, M.D.

Dr Omond exhibited a preparation of an ascaris lumbricoides, which had been vomited by a patient, when in a very exhausted condition. The case was chiefly interesting as illustrating the difficulty of forming an accurate diagnosis. The patient was a young lady of about twenty-two years of age, whose first symptom was an escape of blood from the mouth. This occurred in the homeward voyage from the Mediterranean, and she had been treated as suffering under hemoptysis, by the surgeon in charge. When in London, a consulting physician prescribed for her, and seemed to take the same view of her case. On her arrival in Edinburgh, she was seen by Dr Omond. Repeated examinations of the chest failed to detect any symptom of disease. The exhaustion was so great that little treatment was adopted, except the use of stimulants. At night, Dr Omond was called to her in a great hurry. She had violent vomiting, and was found in a very collapsed state; the pulse was almost imperceptible; she could not swallow, and she believed herself to be dying. The only matters ejected were the secretions of the stomach, with the lumbricus, 10½ inches long, which was now exhibited The patient very soon rallied, and permanently recovered. Before, she had been under the care of three physicians, neither of whom had detected the cause of her severe distress.

After some inquiries into the history of the case, *The President* remarked that the *hœmoptysis verminosa* had been long known in books, although he did not know how, as in the present case, it was to be distinguished.

II. ON THE NECROSIS OF SCROFULOUS PATIENTS, AND ITS RELATIONS TO CARIES.
BY JAMES SPENCE, F.R.C.S.E.

Mr Spence specially distinguished between necrosis occurring in a healthy subject, and the necrosis of scrofulous patients which only was under examination. He very fully detailed the points of resemblance presented by those diseases usually regarded as distinct. Mr S. was of opinion, that they were essentially the same in their pathological nature, but, occurring in different textures of the bone, were modified by the different characters of those textures, and presented distinct characteristics in accordance with the different conditions under which the disease occurred.

(*The paper, which was illustrated by an extensive series of preparations, will appear in an early Number of the Journal*).

Dr W. T. Gairdner desired that the surgeons, who were present, should give utterance to their opinions on the important subject presented by Mr Spence, to the Society. It would be interesting to know whether there was uniformity or contrariety of opinion among them on the question of the identity of necrosis and caries in scrofulous patients. He did not profess to regard the subject from the surgical point of view, but, as a teacher of pathology, he had been accustomed to refer to necrosis and caries as essentially one and the same disease. As a pathologist, he had entertained and taught the same views of these diseases as had been brought before the Society by Mr Spence in connection with their bearing on practical surgery. He was not insensible to the fact, that on this subject his views were contrary to those entertained by so great an authority as Mr Syme. Necrosis he had been accustomed to define as death of bone occurring in the shaft; and caries, also, as death of bone in the cancellated texture, or articular expansions of bone. The difference which these two conditions presented, he believed, depended on the anatomical structure of the portions of bone affected. In the more dense structures of the shaft, a much smaller amount of infiltration was sufficient to cause death than in the more vascular cancellated tissue, therefore the characteristics of *necrosis* were more fully developed in the dense tissue of the shaft. It was to be noticed, also, as explaining the different appearances presented by this same diseased action in the shaft, and in the spongy texture of the bone, that the power of reproduction was much greater in the former. This was observed in all cases, independently of those scrofulous affections immediately under consideration. There was no such attempt at reparation of loss of substance exhibited in the cancellated structures, as was found in the shaft. Like Mr Spence, he had been taught as a student, to regard caries as having some resemblance to cancer—as having something almost malignant in its nature, and as being equally incurable as cancer. His views, however, now agreed with those just submitted to the Society. The idea of incurability, as applied to caries, was only admissible, as implying that it had not been cured by the long continued attempts of able surgeons,—were the powers of the patient able to bear up under the irritation attendant upon caries, the idea of the incurability of this affection would be very much modified. It was very obvious, also, that the character of the diseased action in bone may vary, as it was found to do in ulceration of the soft parts—it may be more or less indolent, or irritable, and the effects would be found to vary, so as fully to explain the different features presented by necrosis and caries. Dr G. regarded the paper of Mr Spence as calculated to be of much use, by inducing surgeons to put more trust in the restorative powers of nature, than had been entertained in connection with the views which were generally prevalent, of the nature of caries.

Mr Lister could not agree with Mr Spence, that caries was to be regarded as invariably of scrofulous nature. In many cases of disease of the elbow-joint—for example—irremediable except by excision—the patient's constitution was perfectly sound, judging from every circumstance, except the presence of the so called caries. Neither could Mr L. allow that the greater obstinacy of caries as compared with necrosis, depended rather upon the situation of the part affected by it than upon its essential nature. At the same time, he quite agreed that this peculiar obstinacy of caries appeared to be in some way connected with the fact of its affecting the vicinity of an articulation. The parts of bones which are liable to caries were not so much the cancellated tissue as that part of the cancellated texture, which is covered by cartillage. Thus, after excision of the elbow-joint, or amputation at the ankle, there remained behind plenty of cancellated texture, yet the disease was not found to recur; all that was necessary being to remove those portions of the bones that entered into the formation of the joints. He thought it deserving of inquiry, whether there was not something in common between caries and the peculiar changes which occur in the nutrition of cartilage, when that tissue is affected with so called ulceration.

Mr Spence replied, that he thought Mr Lister must have misunderstood what he said with reference to caries always having its seat in the articular ends of bone, and that being the cause of its peculiar obstinacy or incurability. What he had said was, that caries was disease of the cancellated texture; and that one reason why surgeons had more frequently to resort to amputation or resection than in necrosis, was on account of its frequent occurrence in the articular ends of bones, and its leading to disease of the joints, attended with hectic, necessitating such operations to save life. Again, Mr Lister had said, that it could not be considered peculiarly an affection of the cancellated texture, for we saw that in resection for caries of the bones of the elbow-joint—that the whole of the cancellated texture of the humerus was not removed. But it did not follow, because caries was a disease of the cancellated structure, that there was caries wherever cancellated structure existed, and so the surgeon only necessarily removed the carious portion and no more. The changes produced in the cartilage of a joint affected with caries must be regarded as secondary phenomena—the cartilage deriving its nutritive supplies from the underlying cancellated texture, undergoes changes in consequence of the diseased condition of the bone. In reference to what Dr Gairdner had said about the vagueness of the term incurability, as distinctive of caries, Mr S. thought, that as Dr G. agreed with him in the general view that caries was a form of molecular necrosis of the cancellated structure, he could scarcely feel at a loss to understand that we could not cure the dead part, it must be thrown off by nature or removed by the surgeon. Again, the reproduction of new bone in necrosis of the shaft, could not be considered a pathological distinction between that and caries; for, though the cancellated texture had undoubtedly less power of reproduction, still a large amount of new bone was often thrown out in caries, as shown in various specimens before the Society.

As to caries not always arising from scrofula, Mr S. considered true caries as a result of strumous deposit in the cancelli of the bone, and itself as strong a manifestation of the scrofulous diathesis as tubercular disease of the lung.

Dr W. T. Gairdner reminded Mr Spence that the profession had still to learn what scrofula was—it had not yet been defined.

The President remarked that he could not subscribe to the last expressed sentiment of Mr Spence. Scrofula is a condition capable of being detected by its external signs, and we do not depend on the occurrence of caries or consumption to show that it exists. Besides, tubercular disease of the lungs may arise independently of scrofulous disease.

III. ON A REMARKABLE CASE OF HYDROCELE. BY JOSEPH LISTER, F.R.C.S., ENG. AND EDIN.

(*Mr Lister's case will appear in a future Number of the Journal.*)

Mr Spence thought that the peculiar case of hydrocele which had just been shown to the Society, could scarcely have been mistaken for a congenital hernia, as Mr Lister seemed to think, for in congenital hernia the communication existing between the general peritoneal sac, and that portion corresponding to the tunica vaginalis, would have allowed the fluid contents, at least, to be reduced, and indeed the intestine also, except in case of tight strangulation or adhesion. Mr S. regretted that the parts had not been preserved as a wet preparation, as such, it would have been of much more value than in its present form.

Dr Keiller remarked that he had no difficulty, during the life of the patient, in concluding that this unusual scrotal tumour was a hydrocele. Although this patient had died in the Infirmary, he was a member of the medical profession, the subject of advanced chest disease, and had also long suffered from diarrhœa. The hydrocele was only accidentally noticed in the general examination of his body. Dr K. regretted that none of the surgeons of the hospital saw the tumour during the life of the patient: the man was evidently in a sinking state, and Dr K. was unwilling to trouble him. The character of the tumour as a hydrocele was evident. It had a flaccid feeling from the tumor being only partially filled. It was remarkable, however, that the patient himself had mistaken the tumour for a hernia, and had worn a truss for several years. There was a large cicatrix binding the scrotum to the thigh, which, the patient explained, was the result of the pressure exercised by the truss.

COLLEGE OF SURGEONS—THIRD CONVERSAZIONE.

On the evening of Friday the 28th March, the President and Fellows of the Royal College of Surgeons held a Conversazione in their Hall. About 150 gentlemen were present, almost all of them professional men, including several practitioners from the country—Dr Andrew Wood, the President, in the chair.

The President congratulated the meeting on the fact that, whereas on the former occasion, there was a large number of non-professional gentlemen present, with a slight sprinkling of professional men, on this occasion there was but a slight sprinkling of non-professional gentlemen, with a large attendance of professional men of the College of Physicians and the College of Surgeons, besides others not belonging to either college, and a number of gentlemen who had come from a distance, as well as country practitioners. The lecture to be delivered to-night by one of the Fellows was on Gun-Shot Wounds, a subject of peculiar interest at the present time.

Mr Spence, lecturer on surgery, then delivered a discourse on gun-shot wounds of joints. The lecturer divided his address into two parts—the first, on the pathology of gun-shot wounds; the second, on the plans of treatment adopted at different periods. With regard to the first, the peculiar character of gun-shot wounds was greatly modified by various circumstances, such as the distance from which the projectile was discharged, the size of the projectile, etc. After illustrating, by some specimens, the effect of musket-balls on the bones, Mr Spence directed attention to wounds of the articular extremities of bones, and to the circumstance, that some of the simplest forms of injury, just because they appeared to be simple, often turned out unfavourably. For a while they appear to go on well—the wound heals, but disease is produced, and months after, amputation becomes necessary. This result had not escaped the attention of Dr John Thomson and others, in which, after the wound was simply treated, the disease in the bone passed into something like the appearance of the bone in white swelling. Mr Spence then exhibited the knee-joint of a Russian General, Baron Driesen, and detailed at length the particulars of his case. He would not enter now on injuries from shells or grape-shot, because those injuries left little room for conservative treatment. In alluding to the form and size of the projectiles now in use as affecting the conservative treatment to be pursued, Mr Spence bade his hearers recollect that, if in the present day the art of surgery was far advanced, human ingenuity had at the same time been active in the invention of the means of destroying life. Proceeding to the second part of his lecture—the modes of treatment in use at different periods—Mr Spence divided the periods into three—the first from the war following the French Revolution, to the year 1815; the second from the French Revolution of 1830, to the year 1838; and the third the epoch of the present war. During the war following the French Revolution, the success of primary over secondary amputation appeared to be established, and the object to be obtained was to define the cases which required amputation, and those where there was a reasonable hope of saving the limb. On these subjects the report made by Dr John Thomson on the hospitals in Belgium which he visited at the close of the war, was highly valuable. It was based on ample materials, the observations being drawn from all the hospitals. During the interval between this period and the period of the Revolution of 1830, and the siege of Antwerp, a great improvement had taken place in surgical science. The Revolution and the siege of Antwerp afforded ample opportunity for trying the effects of conservative surgery. Mr Spence next referred to Mr Alcock's "History of the British Legion in Spain," and to a paper published by Mr Alcock in 1840, as affording an invaluable collection of cases of all sorts, and as illustrating the effects of different modes of treatment. He noticed also what had been done in surgical instruction here by Mr Syme. The result of experience appeared to be, that operative treatment was often, in reality, more conservative than expectant treatment; just as, in certain cases, amputation might be the most conservative treatment in reference to life. Where the operative treatment saved a tolerable limb, they got clear of the objection to conservative treatment. Excision of joints, where it was done as a primary operation, often prevented amputation. It was shown by actual experience that primary excision was superior to the expectant system of surgery. Out of eleven patients, in whom the head of the humerus was excised, ten recovered by primary excision. Out of fifteen treated on the expectant system, because their wounds were considered less severe, eight died, four survived with injury, and three were cured by secondary excision; whilst out of forty resections of the elbow only six died. In the lower extremities excision was more dangerous. Excision of the hip-joint had been almost uniformly attended with fatal results. To give excision a fair chance, it ought to be primary. In conclusion, Mr Spence said that few would forget the outcry that was lately raised about the alleged neglect by the surgeons of the wounded after the battle of Alma, but if they would look at the catalogue of the wounded after Waterloo, they would see what foundation there was for this outcry. There they would read such an intimation as this:—"Fourteen days elapsed before anything was done"—or a notice of men brought into Brussels fourteen days after Waterloo, with their wounds all that time undressed. This was at the close of a long war, and after a battle fought in the neighbourhood of a great city. In the case of the Crimea, it was after the first battle fought in the enemy's country; and with this contrast, would any one say that the neglect of the wounded after the battle of Alma was unparalleled?

Sheriff SANDFORD rose to thank the lecturer for his excellent lecture, and also to thank the President of the College of Surgeons for inviting them to this Conversazione. He, like others in this room, had many friends engaged in the late war, and, from this lecture, he learnt what they were exposed to—they were instructed in the horrors of war, and might acquire a feeling of the blessings of peace. They knew what had been done by those noble-hearted men, who, though they did not share in the glories of war, had the firmness of head and the firmness of hand to expose themselves to its dangers, while they attended the wounded and the dying. He was glad to hear the observations which the learned lecturer had made at the close of his address. The blame was not with the surgeons, the blame was in the want of preparations being made for the cure of the wounded. Who can forget Mackenzie, who voluntarily went to take care of the wounded, and died like a hero? Who can forget Thomson, who went about like a good Samaritan, binding up the wounds of his countrymen, and also binding up the wounds of his country's enemies? Such men as those had earned for themselves a glory which would last as long as this war was remembered.

The PRESIDENT begged, in addition to the names mentioned by the Sheriff, that they should not forget the name of one who was alive to wear his laurels—Dr Wilson, of the 7th Hussars, who fought like a brave soldier, and to whom the Duke of Cambridge owed his life on the field of Inkermann.

After the conclusion of the business of the evening, the company were entertained to refreshments of tea and coffee.

HARVEIAN SOCIETY—ANNUAL FESTIVAL.

THE Seventy-Fourth Anniversary of the Society was held in the Royal Hotel, Princes Street, on Saturday the 12th of April. It was numerously attended by all ranks of the profession in town, and by brethren from the country. Among the strangers present, we noticed J. Dingwall Fordyce, Esq., advocate, Dr Velten, from Aix-la-Chapelle, Dr Campbell Stewart, of New York, and Dr Wilkes, from London. Dr James L. Bryden, the successful competitor for the prize awarded by the Society for the best essay *On the Production of Sugar in the Human Economy*, was also there, as the Society's guest.

The President, Dr Malcolm, delivered a very interesting address on the Early History of Midwifery in the Scottish capital, and which, we hope to present to our readers in an early number. Professor Simpson moved a vote of thanks to Dr Malcolm for the admirable paper to which they had listened with such pleasure.

The company then adjourned to the dining-hall, where an ample repast was spread—Dr Malcolm acting as chairman, and Dr Inglis as croupier. After the usual toasts, Professor Bennett proposed the health of Dr Bryden, and alluded, in flattering terms, to the excellence of the essay which had obtained for him the honour of the Society's prize.

Professor Simpson proposed "the Visitors," a toast which was warmly responded to, and elicited interesting replies.

The Bard of the Society, Dr D. Maclagan, at the request of the President, then read and presented to Dr Seller, the diploma of *Doctor Hilaritatis*, which had been unanimously conferred upon him at last year's meeting. Dr Seller replied in a Latin ode, in which the honour was acknowledged in flowing classical numbers.

Various other toasts were proposed, including the "University," the "Colleges of Physicians and Surgeons," etc., etc., and the company broke up at a late hour, evidently well pleased with the pleasant intercourse they had enjoyed.

We may add, that the Society has this year received an accession of strength in the persons of Dr Charles Wilson, Dr Laycock, Mr Lister, and Dr Thomson of Dalkeith.

THE NEW REGISTRATION ACT.

To the Editor of the Edinburgh Medical Journal.

Edinburgh, 20th March 1856.

My Dear Sir,—On the 21st of January, a certificate of death was filled up by me as having occurred in Ravelstone Cottage. But being unable to ascertain in which parish it was situated (even after having made inquiries at about twenty individuals, including the inhabitants of the cottage), the certificate was left at the office of one of the Registrars in town. The enclosed correspondence is the result.

I may state that, by *mere accident,* I discovered the cottage to be situated in the West Church Parish. Surely the Registrar-General, or some one else, ought to be supplied with the means so as to assist the medical practitioner in making "the necessary inquiry to enable him to comply with the statutory provisions" should a similar case again happen.—Yours truly,

J. A. Sidey.

Note 1st, From the Registrar-General.

General Registry Office of Births, etc.
Edinburgh, 23d January 1856.

The enclosed certificate was transmitted here by one of the Edinburgh Registrars; Mr Sidey will have the goodness to forward it to the Registrar of the parish within which Ravelstone Cottage is situated.

Note 2d, To the Registrar-General.

25th January.

Mr Sidey not knowing what parish Ravelston Cottage is in, requests the Registrar-General to supply him with the necessary information.

Note 3d, Answer.

General Registry Office of Births, etc.
Edinburgh, 29th January 1856.

The Registrar-General begs to inform Mr Sidey that he does not happen to know in what parish "Ravelston Cottage" is situated, and that the duty of ascertaining that fact, with the view of transmitting the Medical Certificate in question to the proper Registrar, devolves upon Mr S. himself. The Registrar-General trusts that Mr S. will not hesitate to make the necessary inquiry, to enable him to comply with the statutory provisions.

LETTER FROM PROFESSOR BENNETT.

To the Editor of the Edinburgh Medical Journal.

Sir,—In a discussion which occurred in the Medico-Chirurgical Society of Edinburgh, on the 20th of last February, my name was alluded to in a very unwarrantable and offensive manner. This would never have been noticed by me, however, had not the report of such proceedings appeared at length in the pages of your Journal. As it is, I beg leave to inform your readers, that Drs Alexander and Andrew Wood have no right to censure any man because he chooses to keep aloof from discussions in which they take a prominent part, and that the opinions expressed by any member of the Medico-Chirurgical Society, are simply his own opinions. Hence may be estimated the value of the assumption, that because nobody, at the meeting referred to, thought it worth while to contradict those gentlemen, their views are to be considered as those of the profession in Edinburgh.

Doubtless, it is very much to be regretted, as expressed by Mr Benjamin Bell and others—(see report of meeting, March 5)—that the Society is not attended by those who are best qualified to enter on medical discussions. But the reason of this will be apparent, on referring to the character and tone of the observations made on Dr Alison's communication. Sound professional knowledge and experience must be expected to depart from a Society, when personal invective and empty declamation are honoured guests.—Your obedient servant,

J. Hughes Bennett.

1, *Glenfinlas Street, April* 23, 1856.

VARIETIES.

The Burdon Poisoning Case.—This case was revived in the public mind on Wednesday by an action in the County Court at Darlington, to recover L.16, 12s. 6d., the charge of Dr Jackson, for attendance on the deceased Mrs Wooler. The jury gave a verdict for the full amount; but the defendant declared he would not pay a farthing—it was his wife's blood-money. The plaintiff was drawn home in a carriage, from which the horses were loosed, amidst shouts of triumph. Great excitement prevailed.

Latest Parisian Notions on the Administration of Chloroform—*From a Correspondent.*—At a lecture delivered by M. Grisolle, on the 8th inst., at the l'Ecole de Medicine, Paris, on the subject of anæsthetic agents, more particularly chloroform, and the accidents liable to occur from their employment—he stated, that the most troublesome result accompanying the use of chloroform, was spasmodic coughing; the most dangerous result was syncope. The principal characteristics of the latter effect, when produced by this agent, were the extreme suddenness of its occurrence, and the difficulty, or rather impossibility, owing to the patient being at the time in a state of anæsthesia, of applying any of the stimulants ordinarily used in syncope, as under the circumstances they have no effect. After citing all the methods that have been tried for the recovery of patients apparently dead from the effects of chloroform, he concluded, that decidedly the best was the attempt at restoring respiration by the operator blowing into the patient's mouth, his own being directly applied to it; and, as the tongue is liable to fall back upon the glottis, and thus impede the entrance of air into the larynx, that no hesitation should be had in transfixing it with a ligature in order to pull it forward. [Or still better, as Mr Syme long ago recommended, seize hold of the tongue with the bull-dog forceps.] M. Grisolle considered that in those cases where the circulation was weak, ether was perhaps to be recommended in preference to chloroform, as having a more stimulant effect, and, consequently, less chance of inducing syncope. In closing his remarks, however, he stated that all anæsthetics must be regarded as unsafe agents, and to be proscribed except in severe cases, and by no means to be indiscriminately employed in trifling cases, such as extraction of teeth, etc.

American Scientific Association.—America (says the *New York Herald*) has never seen such a gathering of savants as Albany will witness in August next. The annual meeting of the American Scientific Association will take place in that city during the third week of August, and invitations have already been extended to most of the distinguished savants of Europe. Some of these have accepted. Others have apparently declined the invitation on the ground of expense—scientific men being, as a rule, by no means the richest in any commu nity. To obviate this difficulty, the Association have addressed letters to the various transatlantic steamer and packet companies, inquiring whether one or more free passages could be placed at the disposal of scientific men from Europe, in order to enable them to attend the meeting in August. The Association itself is too poor to be able to defray the expenses. Answers have been received from several companies, and a number of free passages have been cordially promised. It will, therefore, be in the power of the committee to invite over a score of the most learned men in Europe to Albany, and enable them to make the trip and return without expending a cent. Even should the hotel-keepers be likely to evince less liberality than the steamship companies, the ancient Knickerbocker hospitality has not yet died out. Nor will the proceedings in August be unworthy the attendance. The State Museum of Natural History is to be inaugurated, and Wm. H. Seward is to deliver a lecture on the occasion. A like ceremony will take place at the Dudley Observatory—an institution which promises to be of signal service to the maritime and railroad interests of the State—and Edward Everett will deliver an oration.

NOTICE TO CONTRIBUTORS.

As it is of the utmost consequence that the Journal should punctually be ready for delivery in London on Magazine day (the last day of each month), we have to intimate to Contributors that, generally, we cannot guarantee the insertion of any article received after the 15th; and in no case, however urgent, can any paper be inserted, if put into the Editor's hands beyond the 20th of any month.

We would also impress on our friends the importance of brevity, as extended or divided communications are less likely to attract the attention of the reader, than if concentrated into one article of moderate dimensions.

PUBLICATIONS RECEIVED.

A Paper on the Effects of Lead on the Heart. By John W. Corson, M.D. New York, 1856.

A Report of some Cases of Operation. By G. M. Humphry, Esq. Cambridge, 1856.

A short Essay on the Qualifications, Duties, etc., of Union Medical Officers. By Robert Knaggs. London, 1856.

Diseases of the Heart. By W. O. Markham, M.D. London, 1856.

Cell Therapeutics. By Wm. Addison, M.D., F.R.S. London, 1856.

An Essay on Intermittent, etc., Fevers. By E. S. Gallard, M.D. Charleston, 1856.

An Oration delivered before the Hunterian Society. By Thomas Callaway, F.R.C.S., 1856.

On the Relations of Technology to Agriculture. By George Wilson, M.D., F.R.S.E., Regius Professor of Technology in the University of Edinburgh, and Director of the Industrial Museum of Scotland, pp. 16.

On the Medical Selection of Lives for Assurance. By William Brinton, M.D., F.R.C.P., Physician to the Royal Free Hospital, and Lecturer on Physiology and Forensic Medicine in St Thomas' Hospital, London, pp. 58. 1856.

Sanatory Remarks in connection with Nuisances: Addressed to Students and Young Physicians. By Thomas Williamson, M.D., Physician to the Leith Hospital, etc., 8vo. Edinburgh.

Part First.

ORIGINAL COMMUNICATIONS.

ARTICLE I.—*On a hitherto Undescribed Disease of the Uterus, namely, Unnatural Patency of the Inner Extremity of a Fallopian Tube.* By J. MATTHEWS DUNCAN, F.R.C.P.E., Lecturer on Midwifery, etc., etc.

IT is the object of this paper to call attention to a pathological condition which has hitherto, so far as I know, escaped the observation of physicians. It consists in continued dilatation of the uterine extremity of a Fallopian tube in the unimpregnated state. It is to be regretted that this condition has not yet been the subject of pathological investigation in the dead body. That demonstration of the disease may, for a long time, be desiderated, for the affection is not fatal, and in *post-mortem* examinations the anatomist is generally careless in observing the condition of parts unconnected with the seat of fatal disease. My confidence in the real existence of this morbid condition of the Fallopian tube, is not staggered by the small amount of actual and direct observation of the condition. For examples are not wanting, in morbid anatomy, of marvellous neglect of morbid appearances, till attention has been particularly attracted to them. In the case of the uterus, the comparative infrequency of its examination by the morbid anatomist, and the fact of the usual examination, even when made, often not revealing the state of this particular part, are sufficient grounds for my at present believing that future researches will discover it.

That the uterine ends of the Fallopian tubes are not always in that state of contraction, to the dimension of a bristle or hair, which alone anatomists describe, will, I think, be admitted by all, on a little reflection; although very few, probably, have distinctly recognised it. The non-observation of any but the contracted condition, is no evidence against its temporary dilatation, as a physiological or natural condition, exactly as the non-observance of its permanent dilatation is no proof of its non-existence as a pathological state.

Embryologists agree that, before reaching the uterine cavity, the fragile ovum, with its already partially villous chorionic coat, is of a line or somewhat more in diameter, or, at least, much greater than to pass through a capillary strait like the inner end of the tube.

For the transmission of this delicate and fragile organism, a free passage is undoubtedly necessary. In the larger portions of the tubes, longitudinal folds of the mucous membrane are observable, which are seemingly an arrangement to admit of dilatation of these parts. These folds cannot be traced in the capillary portions. But these portions must, nevertheless, dilate to transmit the ovum on its passage from the ovary to settle and take root in the uterine cavity. Further, although not to be ranked among natural phenomena, we may allude to the now numerous observations of tubal gestation, where the developed embryo or fœtus is on the side opposite to that of the corpus luteum. In these cases, if our present laboriously acquired views with regard to the corpus luteum have any truth (which no one can doubt), then one of two occurrences must have taken place. Either the ovum must have passed from the ovary of one side to the tube of the opposite side, *via* the peritoneal cavity, an almost inconceivable route; or, it must have passed along the tube of its own side, entered the cavity of the womb, traversed it, and ascended the tube of the opposite side.[1] It needs scarcely be said, that the latter hypothesis has been generally adopted, and it implies the dilatation of one tube to emit the ovum, and of the other subsequently to admit it. Lachapelle, indeed, seems to think it probable that, in some cases, extra-uterine pregnancy is to be referred, not to arrest of the progress of the *ovule*, but to a retrogression, as she calls it, of the *fœtus*, from the uterine cavity through the orifice of a dilated tube.[2]

In cases of morbid or unnatural pregnancy, dilatation of the inner end of a tube has been not unfrequently discovered. For example, Dr Campbell relates the case[3] of a female who died after an illness of twenty-two hours. "She had formerly been once pregnant, but aborted, and on the present occasion she had been obstructed six weeks, and been subject to dyspnœa. The body was examined, when about three pounds of serum were found in the right sac of the pleura; and in the lower part of the abdomen and pelvis, nearly the same quantity of blood, partly fluid and partly coagulated. The right Fallopian tube, to the extent of an inch, in its course from the uterus, was dilated to about six lines in diameter; and a ragged oval aperture, rather smaller than the circumference of a coffee-bean was seen on the anterior aspect of the dilated portion, but no embryo could be discovered." Another class of examples is found in cases of tubo-uterine gestation, such as that of Patuna recorded by Sandifort,[1] where, on dissection, a fœtus was found in the abdominal cavity, connected to the placenta attached in its usual site, by the cord, which passed from the uterus along the inner end of the tube for an inch, and then emerged into the abdomen. The cases of Hey, of Hofmeister, and of Feilitz, are more or less analogous to this, and need not be referred to more particularly. Laugier, in the twenty-eighth volume of the *Archives Gènèrales de Medicine*, relates two marvellous cases of this description. In one, after delivery of a child, he introduced a hand into the uterus, and examined another body lying in the right Fallopian tube, introducing his finger into the tube, through its dilated uterine extremity. In the other, also a case of delivery, the child was, for the most part, in the Fallopian tube, from which he extracted it footling.[2] According to Lachapelle,[3] Planchou (*Operation Cæsarienne*) has frequently observed a notable dilatation of these orifices.

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[1] Since the text was written, I find a third theory of this occurrence has been proposed. I give it in the words of Dr Tyler Smith, from whose very valuable lecture, in the *Lancet*, April 12, I quote :—" Or the left tube may have reached over to the right ovary, and have taken up the ovule. This was the opinion to which, I believe, Dr Oldham and Mr Wharton Jones inclined."

[2] *Pratique des Accouchemens*, tom. iii., p. 93. The obstetric reader scarcely needs to be reminded, that since the earliest times to the present, it has been held by some physiologists, that the os uteri becomes dilated during sexual congress.

[3] *Memoir on Extra-Uterine Gestation*, p. 93.

These morbid pregnancies are not the only cases of this unnatural patency found on dissection. For that exact observer, Morgagni, in describing the uterus of a woman affected with hydatids, says,[4] that each of the tubes was, near the uterus, increased in thickness, and not only pervious but dilated, and that that part of the left was full of almost limpid mucus. In an article on catheterism of the Fallopian tube, Dr Tyler Smith has the following passage, mentioning a case of dilatation, and to some extent anticipating the subject-matter of this paper as well as of his own. "I believe," says he, "the Fallopian tubes have occasionally been probed by others, though unintentionally. Meeting Mr Walter Bryant of Bathurst Street, in consultation, a short time ago, that gentleman assured me, that he once saw the uterine sound used for purposes of diagnosis, in a case in which it was passed into the uterus to such a depth, as could not be accounted for by the length of the uterus. The patient died of organic disease, a considerable time afterwards, and, on examination, it was found that one of the Fallopian tubes was considerably dilated, so that there was little doubt that the sound had passed into it."[5]

In other instances, this morbid condition is left to be inferred with more or less of assurance. It is well known that numerous cases exist of hæmorrhage into the Fallopian tubes, and of collections of fluid or dropsies in them. In such, the tubes are in general actually or potentially sealed at both extremities. Sometimes, however, the blood has found its way into the peritoneum. At other times, the blood or other collected fluid has been discharged per vaginam. Thus, Boivin and Duges[1] mention a case, related by Frank, where serous matter from the Fallopian tubes was discharged through the uterus and vagina, to the extent of a pint a day; the patient died of consumption, and thirty-one pints of aqueous and gelatinous matter were found in the left Fallopian tube. To this case numerous analogues may be found in cases of discharge from ovarian cysts through the tubes. This state of matters is sometimes described as the hydrops tubarum profluens, and is discussed under that title by Kiwisch.[2] This author, indeed, describes these tubes, as sometimes, during menstruation, yielding a bloody discharge. A case of Brodie's is, on the other hand, often alluded to, where retained menstrual secretion passed from the uterus into the abdomen, through a tube. We also find Rokitansky and Kiwisch both describing catarrh of the tubes as co-existing with the same disease of the uterus and vagina.

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[1] *Thesaurus Dissertationum.* Vol. III., p. 325.

[2] See Campbell's *Memoir on Extra-Uterine Gestation.*

[3] *Pratique des Accouch.* Tom. III., p. 94.

[4] *Letter* XXI., *Art.* 47.

[5] *Lancet* II., 1849, p. 118.

The evidence upon which I have chiefly relied for the diagnosis of this disease, is afforded by the use of a probe. In the cases, upon which I chiefly build, there was no tumour of the womb, or other pelvic viscera, to cause confusion. The probe, passed through the os uteri, advanced with the least possible pressure, so far as to be certainly beyond the uterus. Indeed, however far it was advanced, no obstacle was felt to pressing it still farther, except its own length, and the motive of caution. Its point could be felt through the abdominal wall far above the pelvis. In passing, it always took a decidedly lateral direction. If, in the early part of its progress, its point were kept directed to the unaffected side, it experienced an arrestment; when changed to the other side, it glided forwards with the greatest ease. Under these circumstances, I submit that it must have passed through a dilated Fallopian tube into the abdominal cavity. This phenomenon I have, in several cases, observed. In the two examples, the data of which I shall presently give, there were, in addition, present, anomalous symptoms in the one; and, in the other, there were copious hæmorrhages, probably coming from the affected tube.

That the probe did not enter the track of an abscess, is evident, because, in the one case, there was no abscess; and, in both, this idea was negatived by the facility of the passage into the canal, by the mobility of the uterus, by the freedom of the probe's motion, and by the facility of feeling it through the anterior abdominal wall. That the probe did not perforate the uterus is certain, for it was passed repeatedly, and without the use of any force. Moreover, the cure of the affection was distinctly noted by the impossibility of passing the probe through the os farther than is usual. When seeing these cases, I was quite aware of this source of error, having heard of several examples where it was undoubtedly done. Fortunately, this awkward and unintentional thrust seems to be unattended with any great danger, if the uterine walls are not disorganized, as in cancer, when the softness and deficient elasticity will allow the small, and in this case easily produced perforation to gape, after withdrawal of the probe, and the hole giving issue to blood or uterine discharges, will speedily light up peritonitis.[1] In the healthy state of the tissues it is different. I have known the perforation to be seen after death, where it was made in course of a difficult diagnosis shortly before; and I have seen an undeveloped uterus, not bigger than the end of the thumb, through whose os a probe had been repeatedly passed for inches, without any bad result.[2]

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[1] *Diseases of the Uterus. Heming's Translation*, p. 501.

[2] *Klinische Vorträge*, II. *Abtheilung*, s. 214.

The diagnosis from that affection, described by Hooper, Simpson, Beck, and others, as morbid hypertrophy after delivery, but better under the new name of deficient or arrested involution, is sufficiently decisive, although I think it is more than probable that some cases described, as of deficient involution, were of this kind. The length to which the probe passes in deficient involution, is only a little more than in natural cases; here its passage is for many inches. In the former, it may pass for three inches or occasionally even more; in the latter, it will pass easily twice as far. In deficient involution the probe is always felt to be contained within the thick uterine walls, to have its direction determined by the direction of the uterine mass, and to have its movements limited by it. In this disease, all these circumstances are altered.

The following details of two cases, are far from being so perfect as I could wish. Their brevity arises partly from my having, in the previous part of this paper, already described some of the circumstances of them.

Mrs N. æt. 35, came from a midland county to consult me, under the following circumstances. Her illness commenced four and a half years previously. Before that time she had had three children, and except while engaged with them, had always regularly menstruated. Since four and a half years ago, has had two children, proved a good nurse as on former occasions, and up till the present time, has not menstruated. At that time, just about the commencement of her third pregnancy, she suffered much from a feeling of cold in the vagina and uterus. In a few weeks this changed into a painful feeling of heat, which has continued ever since, with remissions and exacerbations. After the birth of the child she suffered much from pain in the uterine region, but was able to be out of bed in a week. Twenty-one months after this confinement, she fell a fifth time in the family way, and again suffered much from uterine pain after her delivery, which was about fourteen months ago. She has had (unless after delivery) no discharge, except an occasional inconsiderable leucorrhœa. She has a clean tongue, and good appetite, but looks anxious, and complains of great weakness and inability for exertion.

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[1] Perforation slowly produced by the advance of ulceration, such as, I believe, has happened from the pressure of the point of an intra-uterine pessary, will, of course, be almost certainly fatal, and does not belong to the categories discussed in the text.

[2] Sir B. Brodie, speaking hypothetically of catheterism of the Fallopian tube, says, " But I suppose the Fallopian tube would bear no rude treatment, and that the accidental perforation of it would be certainly fatal."—*Lancet*, II., 1849, p. 119. If the remarks in the text are well founded, this opinion of Sir Benjamin's is groundless.

The right leg is always slightly œdematous. The belly is considerably distended, giving everywhere a tympanitic sound. On making a vaginal examination, the uterus presents no unatural feeling to the finger. A probe passed into it goes up towards the right side, without any force, for eight inches. She was ordered to inject into the vagina at bed-time, half a quart of cold water, holding in solution fifteen grains of sulphate of zinc, and the same quantity of alum ; to apply a flannel cloth, dipped in hot turpentine every night, or every second night, over the hypogastrium; and to take internally small doses of Battley's liquor of ergot, and of ammonio-citrate of iron, three times daily. With these directions she returned to the country. In two months she sent a messenger to me to say she was somewhat better. She at that time began again to menstruate. In a year she came again to see me, having lost her former painful symptoms, the periods being regular, the swelling of the leg being also gone. On using the probe with all diligence, it could be passed only two and a half inches.

Three weeks after Mrs R.'s confinement, I was asked, by a late medical friend, to see her along with him. She had a large abscess at the right side of the uterus, discharging copiously per vaginam. Under appropriate treatment the pelvic swelling entirely disappeared, and the uterus became mobile, but the purulent discharge continued abundant. After a lapse of many weeks, she was subjected to careful examination, when nothing unnatural was discovered, except that the probe passed easily through the uterus towards the right side for six or seven inches, and its point could be felt through the abdominal parietes. The woman was ordered to use ten drop doses of the syrup of iodide of iron thrice daily, and to have the right hypogastric region painted over twice daily, with the tincture of iodine. After some weeks of this treatment, the discharge gradually diminished and disappeared. But a copious bloody discharge, amounting to a hæmorrhage, took its place. It recurred at intervals of from a fortnight to three weeks, and continued for several days to an alarming amount. The probe entered the uterus as before. The ordinary treatment for hæmorrhage by acids, opium, posture, etc., was diligently carried out. In addition, she was made to inject cold water into the vagina, a remedy which seemed to have the most beneficial effect in arresting the floodings. After a year and a half's illness, she began to improve, and at last the excessive discharges ceased, the uterus then admitting the probe a little less than three inches.

ARTICLE II.—*Surgery of the Crimean War*. By GEORGE H. B. MACLEOD, M.D., M.R.C.S. Edin., Lic. Fac. Phys. and Surgeons, Glasgow; Surgeon to the Civil Hospital at Smyrna, serving on the Staff of the Army in the Crimea, and attached as Surgeon to the General Hospital in Camp.

FROM the time the British army advanced to meet the enemy in September 1854, to the end of 1855, there were 8809 wounded men received into the military hospitals in the Crimea. Of that number, 962, or 10·92 per cent. died in the Crimea; 4414 were discharged to duty; 2853 were transferred to other hospital stations; 53 were transferred on account of "other diseases," and readmitted again; 283 were transferred to undergo operation, and 335 remained in hospital in the Crimea on the 31st December, the result of their cases being unknown. The above numbers can only be looked on as an approximation, as near as procurable, to the truth. The number of cases admitted and disposed of do not correspond, nor do the number transferred for operation agree with the absolute number who were operated upon. Absolute accuracy, in such complicated returns as those of this huge army, is almost impossible.

I may premise, that the cases which are mentioned throughout these papers as having been "Transferred" to other hospitals, were those which were sent away from the Crimea to some of the other stations of the army hospitals, or invalided to England; and, as at various periods during the recent campaigns (as will be afterwards more especially pointed out), it was necessary to remove patients thus at so early a time after the receipt of injury, that it was impossible to determine the result of their injuries; and as the numbers given in these papers merely represent those which appear in the returns of the Crimean hospitals, a certain proportion of the cases "transferred to other hospitals (a different proportion in different wounds, and at different times, as will be shown), must be considered as having ended fatally, and such numbers added to the total mortality mentioned in the Crimean returns before we approximate the truth. I had intended, in the following paper, to have given tables similar to those introduced by Alcock, showing the proportion which the different classes of wounds hold to one another in the several kinds of engagements in which the army has taken part, but I found that neither the time nor the opportunities at my command would enable me to do so.

Of all the different species of severe injuries received in action, compound fracture is the most common. During the past war, 997 cases of compound fracture of the long bones of the upper or lower extremities, have been admitted into the various hospitals, and 213 deaths have resulted immediately, without taking into consideration those who died after amputation, necessitated by these injuries, or yet those whose death took place after leaving the Crimea; 87 cases of simple fracture have followed contusion by round shot, and 2 deaths have occurred from that cause.

Those characters peculiar to compound fractures, resulting from gunshot, which have always been recognised as imparting to them extreme fatality, have been, perhaps, more pronounced during the present war than during any previous one. The laceration and contusion of the soft parts, and the extensive comminution of the bones, were never before so marked, because the missiles giving rise to them have never been so formidable. It is in the production of these injuries that the extraordinary force of the new rifles, and the peculiar action of their heavy conical balls, become most evident. One large hollow conical ball, used by the Russians, produced a wound little inferior to that caused by a large grape. The old musket-ball, at a certain range, no doubt, splintered any bone it impinged against; but at a shorter or longer distance, it did comparatively little harm, either passing through the bone, if it struck near the epiphysis, or sticking fast in its substance without much splintering. The conical ball, on the contrary, at close quarters, and at an immensely long range, perforates the limb and splits the long bones in its course to an incredible extent. Thus, I have known the femur several times split from the trochanter major into the knee-joint, and the humerus cleft from one end to the other. This splitting takes places, I may remark, much more readily in a downward than in an upward direction. As the enemy, on the 8th of September, fired their old round ball as canister, many good opportunities of observing the different effects produced by it and the conical ball, were obtained. A man was lately discharged from this hospital, who escaped very severe injury, in a manner which could only have occurred from his having been wounded by a round, and not a conical, ball. The bullet entered near the tendo achillis, and passing forwards and inwards, lodged as if in a piece of wood, in the lower end of the tibia, close over the ankle-joint, and when the ball was removed the bone was found not to have been split in any direction. If the wound, in this case, had been occasioned by a conical ball, the joint would have been, to a certainty, opened, and the tibia, in all probability, so split as to have necessitated amputation. In another case, in the same ward, a round ball made a hole as clean as if it had been cut out with a punch, through one of the condyles of the femur. A conical ball would have so split the lower end of the bone, that amputation in the middle third of the thigh, would have been in all likelihood called for, whereas, in this case, amputation of the joint was sufficient to remove the injury. Innumerable cases might be cited to show how great a difference it makes on the resulting fracture, and *a fortiori*, on the final effects whether the ball inflicting the injury be a round musket or a conical rifle bullet. I never knew an instance in which a ball of the latter description failed to split and comminute greatly any long bone against which it struck.

The splitting and wide comminution of the long bones by the new rifle ball, leads to another fact connected with fractures occasioned by them, viz., that we may expect, if we are fortunate enough to obtain consolidation of the bone, a greater amount of shortening than usually follows fractures caused by the round ball. Besides, it has been shown, in many cases which have come under my notice, that in these severe fractures it is often highly prejudicial to employ much extending force early in their treatment, as the loss of substance is often so great, that it becomes more necessary to favour the approximation of the ends of the bones than to draw them asunder.

The fact, that in compound fractures from gunshot, the tracks leading to the bone cannot be made to close, as they must suppurate before healing, makes a very great difference between them and most of the compound fractures met with in civil practice. That severe inflammation of the deep and irritable tissues which constitutes the danger in compound fractures, can never be avoided in gunshot wounds, as it often can in such fractures from other causes, by closing the wounds and obtaining their adhesion, so as to convert the injury into a simple fracture.

Compound fractures can hardly be treated in the field. The constant attention and careful nursing such cases require during the long and protracted process of cure, can hardly be obtained in establishments so constituted, and so liable to be moved about, as the hospitals of an active army. Hence, it would appear, very doubtful, on this ground alone, if cases of compound fracture, of the thigh at least, should not, in almost every instance, be submitted to amputation. Sometimes, though very rarely, the contusion of a round shot, or the flat piece of a shell, causes a compound fracture of the femur, accompanied by very little comminution. Such cases, of course, demand a different line of practice; but, unfortunately, it often happens that it is impossible to know that the injury is not of so severe a nature as to call for amputation. The bone may appear little comminuted, when, in fact, half of the shaft is implicated and split into large fragments.

"The ordeal of recovery" from compound fractures, has generally been considered sufficiently trying under the most favourable circumstances, but it became almost impossible, in the case of patients, whose constitutions were so broken as were those of most of the men who came under treatment in the Crimea. I examined, during the winter of 1854–5, the limbs of a large number of men who died at Scutari, and in hardly one single instance was there the least sign of reparation found in either bone or membrane. The fracture ends of the bone were usually black, the soft part sloughy, and the small bits of detached bone dead.

When an attempt is made to bring about the consolidation of bones, fractured, compoundly and comminutively by gunshot, more care should, I believe, be taken than is usually done to remove all loose spiculæ of bone from the seat of fracture. In most cases examined after death, a large abscess is found surrounding the place of fracture, and dissecting the periosteum from the ends of the bone, as well as infiltering the neighbouring tissues, while detached fragments of bone—the primary and secondary spiculæ of Dupuytren—lie in every direction, and not unfrequently crosswise between the ends of the bone. Such pieces of bone are almost as hurtful as so many pieces of iron, as they keep up a long and violent amount of irritation, totally preventing reunion, and promising long-continued and grave mischief, even if consolidation does fortunately take place, as they will become entangled in the new bone. When it is considered too, how small an opening, in most cases, leads to the seat of fracture in gunshot wounds, and how ill adapted it is not only to allow detached fragments of bone to escape, but also to give exit to the profuse suppuration, I think it will be granted that, in most cases, we should increase by incision the more dependant of the two openings which usually lead to these injuries, and take pains to remove, with as much gentleness as possible, all the small fragments of loose bone which occupy the seat of fracture. The retention of the opening, so as to give free exit to effused fluids, will of course follow.

Compound fracture of the femur from gunshot, has been long and justly recognised as one of the most formidable injuries of warfare. The experience of this war has not, however, been so unfortunate as Ravanton tells us was his, when he says, that in his long life and large experience, he had never seen a gunshot fracture of the femur unite. Cases of cure have, however, been very rare.

The thigh has been fractured compoundly 215 times, 107 of which number have died in the Crimea, 2 have been discharged to duty, 68 have been transferred to other hospitals, 34 have been re-admitted for amputation, and 4 remained undetermined when the returns closed.

At least 3 cases of consolidation have taken place in compound fractures of the upper third of the femur. In two of these cases the injury was caused by a round ball, and the comminution was slight. It will be subsequently seen, that about a third of the amputations in the upper third were "transferred," and, consequently, we may be led to infer, that at least SOME have survived that operation—an inference which, I am fully convinced, from what will be afterwards stated, would be quite erroneous, and that, in truth, no amputation, *clearly* in the upper third, has lived. If this be so, then the experience derived from the Crimean campaign would make it appear that the chance of saving life, though a very small one, is in favour of trying to save a thigh, fractured compoundly by gunshot in its upper third. Simon of Giessen, speaking of this question, recommends the same course, from a review of all the reported cases of this injury, and he also extends the axiom to cases of fracture in the middle of the bone, wherein I believe him wrong, for reasons afterwards given. In the Schleswic-Holstein war, they thought amputation preferable, in compound fractures of the upper third, but such has not been the teaching during this war. Even if the patient dies, he has, in the one case, many weeks of comparative freedom from pain; while, in the other, besides being submitted to all the horrors of an operation, he almost to a certainty, dies within a fortnight.

As no distinction is made in the returns between compound fractures occurring in the upper, middle, or lower thirds of the thigh, and as the very obvious division of amputations into primary and secondary, has also been omitted, it is impossible to show in numbers what is, however, a well recognised result, from the experience here, viz., that though reunion has, in rare cases, followed compound fractures in the middle and lower thirds of the femur, still, that the ultimate per centage of loss is greatly less when amputation, during the primary period, has been performed, than when limbs are saved, or tried to be preserved, and removed late, during the secondary period. As those cases, moreover, which were retained for cure, were always those in which the amount of injury was least, the presumption in favour of early amputation in cases of compound fracture from gunshot, in the middle and lower thirds of the femur, is considerable. The chance of obtaining reunion is somewhat better in the lower than in the middle third, and the hopes of recovery after amputation are better there also, so that, taking one thing with another, the experience of the past war would lead us to the conclusion, that when the thigh is fractured compoundly in its upper third, it should be saved, but that amputation should be immediately had recourse to in cases of a like injury in the middle or lower third of the same part. Fractures, which are of a simpler description than those usually met with, are not, of course, meant to be included in the foregoing. M. Mourrier, with whose acquaintance I was honoured when he was at the head of the Great French Hospital in Peru, had concluded, from his ample experience, that all cases of compound fracture of the femur from gunshot should be amputated, unless the destruction of soft parts and the comminution of bone was very trivial. In some cases which occurred early in the war, callus, though thrown out round the ends of bones fractured, did not solidify —an effect evidently resulting from the scorbutic taint present in the blood of the patients. This leads me to remark, that the deductions drawn on this, as well as most other points connected with the surgery of the first war, must be received with some reserve, as well as from the state of things which existed at the beginning of the war, and on which I dwelt in my former paper; the results we have hitherto obtained are not, in all probability, identical with those which would follow a more favourable condition of things, or which would, in all likelihood, exist, if the army had made another campaign. Our bad hygienic condition has deprived us of the advantages of the improvements made in surgery during the last half century, and has approximated our results with those of the Peninsula.

Compound fracture of the leg (both bones) has occurred 248 times, 52 of which have been fatal; 7 discharged to duty, 149 transferred to other stations, 37 readmitted for amputation, and 3 remained undetermined at the end of the year. The tibia only has been fractured compoundly 85 times, with 11 deaths and 9 readmissions for amputation, 10 remaining undecided. The fibula has been similarly injured by itself 37 times, with 4 deaths, 5 admissions for operation, and 4 undetermined as to results. Many of the cases of compound fracture of the leg were so severe that amputation was called for; but in a very large number of cases, the limb has been saved, even under the most unpromising circumstances. The treatment in cases saved has certainly been frequently both long and harassing, and could not perhaps have been carried out, either so frequently or so well as it has been, if the army had not been so stationary.

The arm has been fractured compoundly 212 times. In 3 of these cases the forearm has been fractured as well as the humerus, in 4 the radius and humerus, and in 1 the ulna and humerus. From all these injuries combined, there have resulted immediately 29 deaths, 6 have been discharged to duty, 139 have been transferred to other hospitals, 23 readmitted for operation, and 15 remained in hospital in the Crimea, the results being undetermined.

The very free anastomosis between the vessels of the arm, the large supply of blood these vessels convey, the ready development of a compensating circulation, and the less necessity there exists during the period of cure, of causing the patient to retain a constrained and irksome position, together with the less drain made on the system by the succeeding suppuration, makes much practicable in compound fractures of the arm, which cannot be attempted in like injuries of the lower extremity. Secondary amputations, too, of the arm have been sufficiently successful to justify the attempt at preservation, in the first instance, of almost every case of compound fracture of its bones.

The forearm has been fractured compoundly 109 times, including the 3 cases before mentioned, in which the humerus also were fractured. Of these cases 9 have died, 5 have been discharged to duty, 73 sent to other hospitals, 18 readmitted for operation or other causes, and 2 remained. The radius or ulna have been singly fractured compoundly 94 times, and death has followed twice from such injuries, and 10 have had to undergo operation. I may here remark, that as there is no provision made in the returns for showing double injuries, death, though apparently following from some stated cause, may in reality have been the result of a combination of injuries. Thus, a compound fracture of one of the bones of the forearm can seldom be the cause of death in itself, but it may be the more prominent of several injuries which, in their sum, have been sufficient to cause death.

Purulent absorption has been the immediate cause of a fatal result following compound fractures, in most cases in which they have so eventuated without amputation. From the experience derived from the treatment of compound fractures and amputations acquired during this war, one is not led to subscribe to Velpeau's doctrine, that " purulent absorption is more common among those who undergo amputation than among those who have severe suppuration, and preserve their limbs." Hectic, the recurrence of old dysenteric affections, and cholera, have carried off many of the patients under treatment for compound fracture.

The resection of part of the shaft of bones injured by gunshot, has been extensively tried, for the first time in the field, during the past war. In the case of the femur, such measures have been, as might be expected, highly unfortunate. All the cases mentioned in the returns in which this operation was performed on the femur, died. But, on the bones of the leg and forearm, as well as in many instances on the humerus, such steps have been followed by encouraging results. At the beginning of the war, far too much was expected from such operations, and an amount of the shaft was frequently removed, far greater than experience would justify us in expecting could ever be reproduced, as it is not often that such results are obtained as those reported by my friend and former teacher, Dr Laurie of Glasgow. Irritative fever, highly destructive to men whose vital powers were so depressed as were those of our patients; long and exhausting suppurations and hectic have frequently caused failure in otherwise promising cases. When the fibula was uninjured, much has been done with the tibia, particularly if a shell, however thin of its structure, has remained undestroyed. Such was the case in a most successful instance of repair which took place in the 20th regiment, under my friend Dr Howard. I mention it, as it may be looked on as a type of many other cases almost exactly similar, which have occurred :—A piece of shell struck the left leg on the edge of the tibia, and caused the destruction of the greater part of the thickness of its shaft, from below the tubercle downwards, for about 3½ inches. The fragments were removed as they became loose, the posterior shell being carefully preserved. The cure was nearly complete when the patient went to England, four months afterwards, the leg being quite strong and firm, but bent a little outwards, as so often happens in these cases. Such a case was just such a one as we might expect this sort of operation to succeed in. I do not by any means deny but that some very excellent recoveries have been made, even when the whole thickness of the shaft has, to a considerable extent, been removed, but they have been much more rare, and infinitely more tedious than cases like that above mentioned. The extraction of from two to three inches seems the utmost limit to which the practice can be beneficially carried, at least so it has appeared here with our patients, and the means of treatment at command. Resection has been, in many cases, most successfully practised on one or other of the bones of the forearm, and also, in some cases, on both bones; but the removal of the greater part of the radius and ulna can hardly be followed by any good result. Cases in which excision can be extended to the bones of the hand and foot, so as to save the removal of the member, by the extraction of the injured part, are more common in military than in civil practice, as a bullet often destroys the hard structures of these parts very much more, in proportion to their soft tissues, than usually results from such injuries as are seen in civil hospitals, where so much destruction is occasioned as to call for surgical interference. In the accidents of civil life, necessitating the removal of any of the bones of the hand or foot, the injury is in general such as extensively destroys the soft structures at the same time. The resections of bones of the foot have been much longer of recovery than similar operations on the hand. A very successful case of excision of the os calcis was performed by Mr Kellet, assistant-surgeon, 68th Regiment, on a patient under his care in the General Hospital. Connon, a private in the 88th Regiment, was struck by a pointed piece of shell, over the tuberosity of the os calcis, on the 8th of June. Though the external wound was small, the bone was quite destroyed. A similar incision under the heel, with a straight one along the centre of the sole, enabled the operator to remove all the injured bone, which comprised the whole of the os calcis, together with the astragalus, all except its facets of articulation, above and in front. The man made a perfect recovery, and, when sent to England in September, had a foot which, though still weak, promised to be highly useful to him. The appearance was that of a foot without a heel, but he could put it flat to the ground, and the weakness he complained of in it seemed more the result of want of confidence than any real want of power. Other similar and equally successful cases have occurred.

The resection of bones injured by gunshot is very much easier than when the operation is performed in civil practice. The ball in general does the greater part of the operation, and little after remains but judiciously to increase the wounds and pick away broken fragments.

The excision of joints is a wonderful advance in surgery since the Peninsular campaigns, and it is an improvement which has been laudably adopted during the past war. The substitution of such an operation for amputation has not, however, been of so frequent occurrence as it was expected it might be. The shaft of bones leading from the joints have, in most cases, been too greatly destroyed to make excision of the joint sufficient to remove the parts injured. The very great success which has followed the resection of joints in civil practice, together with the fact, that not only was there no local disease, but also no active development of such constitutional disease as is usually present in cases operated on in civil life, made surgeons naturally sanguine of the results of such operations performed in the field; but the circumstance above referred to has, in most cases, left the attendant no alternative but to remove the limb. Amputation has frequently had to be performed when the incisions for resection have shown the real state of the bone.

The propriety of performing all excisions as early as possible, has, I fear, been much overlooked. It has always appeared that those cases which have been early operated on have done best, and it is, in general, easy to determine immediately what cases clearly call for such operations *at least*. The French and Sardinians, I believe, have had very few cases of resected joints.

The shoulder joint has been excised 12 times, 2 have died, 9 have been transferred, and 1 remained on the 31st of December. At least two-thirds of the cases "transferred," may here be supposed to have completely recovered, so that 7 successful cases have resulted out of 12 operated on. Hennen did not then show his usual discrimination, when he concluded this operation to be "more imposing in the closet than applicable to the field." The operation, when performed by a straight incision over the anterior or posterior surface of the articulation, has appeared, I think, the best adapted for gunshot wounds, when a choice was possible. In civil practice, from the presence of disease, a larger opening is required than in the field, where the bone is much comminuted, and the tissues sound. Speaking of excision of the shoulder joint, M. Bandens has well pointed out the necessity of carefully retaining all the muscular and tendinous structures around the joint, so as to assist in keeping the shaft in contact with the cavity, and thereby securing the utmost possible latitude of motion in the new form of articulation which results. This can be well done in military practice, where no disease is present.

Some partial excisions of the shoulder joint have turned out well. It is often wonderful how much of the head of the humerus may be removed without opening the capsule, but even when the articulation has been opened, and the capsule partially removed, most excellent recoveries with anchylosed joints have been obtained.

The elbow has been resected 17 times, followed by 2 deaths. Ten have been sent away to other stations, 3 have been discharged cured, and of 2 who remained at the end of the year, 1 at least has since gone home quite recovered. I believe the straight incision, as practised by the French in the resection of this joint, to be preferable in military surgery to the H, which has been chiefly followed in our army. Partial excisions of the elbow, by which one or other of the ends of the bones entering into its formation, have been removed, have not been uncommon, though very few appear in the returns. My impression is, that such operations have been by no means so fortunate in their results, as when the whole joint has been excised. I recall two cases in point. A soldier of the Fusiliers had the head of the radius, and a small portion of the lesser sigmoid notch removed, which called for amputation two months afterwards, there never having been any attempt made at a cure by the parts. (2.) A soldier of the 23d Regiment, admitted into the General Hospital in Camp, after the assault on the 7th September, had the external condyle, the emmentia capitata, and part of the trochlea, destroyed and removed, the soft parts being little injured. Sloughing set up, great constitutional disturbance followed, and amputation had to be performed three months afterwards. If complete excision had been early performed in both of these cases, I believe we might have obtained much more happy results. But, on the other hand, such cases as the following have occurred. A soldier, when mounting the heights of Alma, was struck by a rifle ball, which passed across his elbow posteriorly, fracturing the heads of the radius and ulna, but leaving the humerus entire. The broken fragments were removed, and the humerus left untouched; and, after three months' careful treatment, this patient was discharged with a famous joint, which admitted of a considerable latitude of motion, and with which he could sustain no small weight. In the 9th Regiment, a man was struck by a ball, which destroyed the inner condyle of the humerus, without injuring the ulnar nerve. The broken fragments were removed by my friend, Mr Thornton, surgeon of the Regiment. The subsequent inflammation was commanded, and an arm was retained, which came ultimately to possess three-fourths of its original motion.

Neither the wrist nor the ankle joints have been excised, so far as I know.

The hip joint has been resected 6 times, but only once successfully. Such a proportion of success is certainly small; but when it is compared with the results of amputation at the joint (the operation for which it has been substituted), it is yet encouraging. All the patients, moreover, on whom excision was practised, survived for a considerable period, and one of them for more than a month, while nearly all those amputated, died miserably within a very short time. Death was caused in 1 by exhaustion, in 2 by pyœmia, in 1 by cholera, and in the remaining case the cause is not given. The successful case was performed on a soldier of the 68th Regiment, by the surgeon of the corps. The cure was complete in three months, the limb being drawn up for about 5 inches, and possessed a slight power of flexion. One case was operated on by myself, and was the first operation of the kind performed during this war.

Couch, a soldier of the Rifle Brigade, was struck, on the 18th of June, by a ball on the ulna, close below the elbow joint of his left arm. The ulna was fractured by the bullet, which then struck the femur on the great trochanter of the same side. The trochanter was split, and severely injured. The patient did not come under my care till the 5th of July, when I found a large ragged wound over the injured trochanter, from which a very profuse discharge of pus flowed. At the bottom of this wound, the bone was seen to be hollowed out into a large cavity, and to be split in all directions. The bone was black and dead. The limb was not shortened or distorted. The wound on his arm gave him much annoyance, and the pain from the hip was so great, that he urgently requested some operation to be performed, which might relieve him. He was brought under the influence of chloroform, in order that the injury might be more completely examined than could otherwise be accomplished from the patient's irritable condition, and also to enable me to get the limb put into a proper position. On enlarging the external wound, so as to make it dependant, and to allow the necessary steps to be taken for the removal of the dead portions of bone, a large fragment of the most external parts of the femur, which comprised what remained of the great trochanter, was found detached, and a fissure running upwards, apparently into the capsule. It was found impossible to remove the dead bone without opening the joint; and, as a very thin shell of the shaft was sound, a consultation decided on the propriety of excising the head of the bone, and removing along with it what osseous substance was destroyed. This was done without difficulty, the original wound being increased a little upwards. Hardly a drop of blood was lost. The wound was lightly dressed, and the limb fixed on an inclined plane, so arranged that the large dependant opening retained, could be got at without having to move the patient. The relief from pain and irritation which was experienced almost immediately, was very marked and gratifying. Next day the patient's pulse was firmer, his expression very markedly better, and he declared himself as perfectly at ease. The limb, in a few days, was shortened for about 2 inches. Suppuration became established; his strength improved; hectic disappeared; he slept well; and his appetite, which, before the operation, was nearly gone, was now restored, and he was totally free from pain or uneasiness. His pulse, on an average, continued about 85 beats in the minute, and was of good character. He continued to progress most favourably for about a week. Part of the wound closed, and the rest of it was clean and healthy. At the end of that period he was seized with violent diarrhœa, accompanied by vomiting and severe cramps, and followed by suppression of urine, which continued for 18 hours previous to death. His stools soon assumed the characteristic appearance of cholera evacuations, his strength rapidly sank, he became rapidly collapsed, cold, and blue, and died during the night. Cholera was prevalent in the camp at the time.

After death, some tubercles were found in both lungs. There was no symptom of purulent absorption anywhere. The vessels in the neighbourhood of the wound were healthy. There were old ulcerations in the intestine, and recent enlargement of the solitary glands. The left ulna was fractured obliquely up towards the elbow joint. The wound over the hip was sloughy, an action it rapidly took on shortly previous to death, and the cut end of the bone was smooth and unchanged. If I had seen this patient earlier, when the nature of the injury could have been more exactly determined, I would have contented myself with merely gouging out the destroyed portion of bone, trusting to the remaining scale to through out callus, fixing the limb carefully, giving free exit to the suppuration, and strenuously supporting the patient's strength. The state of the lungs and intestine, as revealed on *post-mortem* examination, made this patient at best but an unpromising subject for operation; but if the fatal disease, which terminated his existence, had not supervened, I would have been sanguine of the result. When he came under my care, I feel sure he was in such a condition, that if no operation had been undertaken to relieve him from the mass of dead bone which he was futilely trying to get rid of, and which was setting up further disease all around it, he would, in a very few days, have died, exhausted by suffering. These are, however, points more easily settled on paper than at the bed-side.

The comparative merits of amputation and excision, as applied to the hip, receive their solution from these statistics. It has been already said, that those patients on whom excision was performed, lived considerably longer than those submitted to amputation, and as, during the period such cases lived, they enjoyed comparative immunity from pain, no small argument in favour of excision can be founded on this one point. But above and beyond this, the *chance of saving life*—and that is the real question—are greatly in favour of excision. Of the 6 cases in which resection has been performed, I have already said 1 was successful; 1 lived till the end of the fifth week; and 1 died from causes not really referable to the operation. All the hip joint amputations, on the other hand, died rapidly and surely. The objection so often made to the operation of excision, viz., that "the limb, though appended to the body, was worse than useless," may be true, but such is by no means the point. In the one case, life *may* be saved; in the other, death almost to a certainty follows. In excision, the shock to the system is beyond all calculation less, as the great vessels and nerves are not interfered with, while those changes in the blood of the limb, whose interruption are considered by some to be the immediate cause of death in cases of amputation, from their continuance being almost essential to the well-being of the system generally, are allowed to go on uninterfered with. In all the cases excised, the hæmorrhage has been very trifling—a matter of no small moment with the class of patients we have had to deal with. Gunshot wounds are, in many cases, particularly adapted for the performance of excision. The injury to the bone in them is frequently limited, and the soft parts are little destroyed. There are, on the other hand, few accidents which present these conditions in civil life. When the shaft of the femur is split below the trochanter, excision is, I believe, inapplicable. Much might have been done in another campaign to determine the real merits of the operation as applied to the hip. If discrimination and care were exercised in the selection of the cases, and the operation was early performed, before the vital powers began to feel the strain, and if the after treatment were judicious, much might be expected from this operation in military practice. The injury was in all probability much greater in many of the cases on which amputation was performed, than in those submitted to excision, so that perhaps an absolute comparison between the results of the two operations is hardly attainable.

The knee joint has been only once excised, and the operation did not turn out favourably. It was performed by Civil-Surgeon Lakin, in this hospital, on a soldier of the 77th Regiment, after the assault on the Redan in September. The ball traversed the joint and fractured the inner condyle. For ten days after admission there were no severe symptoms; inflammation then set up, and a week afterwards the operation was performed. The patella was left. The patient did remarkably well for upwards of a fortnight, when symptoms of purulent absorption set in, and he sank on the 28th of October. This operation is clearly not adapted for military practice, as months and months of the utmost care and sedulous nursing was required, the patient remaining all the time under the care of the same surgeon, to procure the results obtained in a few select cases which have been reported from civil practice. Such advantages are, in a great measure, unattainable in the field; while the superior claims of the operation to confidence over amputation in the lower third of the thigh, even as a question of mortality, are by no means established. Besides this, the limb which remains after excision is so delicate, requires such constant care, and bears withal so little "roughing," that I suspect the soldiers themselves, if the question were left to them to decide on, would prefer amputation. No analogy whatever exists between excision of the knee and resection of either the shoulder or elbow, as some have endeavoured to show. In the case of the knee, the weight of the body has to be sustained. Excision of the hip is advocated merely as a means of saving life. If the knee is resected, it should be done early. A joint injured by a ball, is primarily free of disease. If the operation be delayed, disease becomes added to injury. The absence of that constitutional error which generally makes the operation necessary in civil practice, holds out a better hope of speedy anchylosis when the operation is performed for injury. As secondary amputations are, however, almost uniformly fatal in military practice, we have not the same hope of being able ultimately to save life if excision fail, by having recourse to amputation, as we have in civil practice.

One or other of the malleoli have been frequently removed in cases in which the injury has been limited to them, and though the cure has been usually very protracted, still most satisfactory results have, in most cases, followed. Three cases of this kind occurred in this hospital about the same time. In all, the external malleolus was removed. One was discharged with an anchylosed joint in fourteen weeks; another in twelve weeks; and the third in two months and a half. Several similar cases were so much injured by the fact of the patient having walked some distance to the rear, on the injured joint, that their limbs could not be saved. I may here remark, that this circumstance of patients having walked on their wounded limbs, has prejudicially affected, not a few of our cases, and it is a circumstance which, in civil practice, is well known to make accidents such as those above referred to, very serious indeed. Struck in an assault near the works of the enemy, the wounded made the most violent efforts to regain our advanced trenches; attempts which, in a shifting battle in the open field, would not have been called for.

The early performance of excisions has been clearly indicated in all the cases I have had an opportunity of observing. In delayed cases pyœmia has not been unfrequent.

Penetrating wounds of joints by gunshot, form a group of cases of the highest interest to the surgeon. The great joints have been (hip, knee, ankle, shoulder, and elbow) perforated or penetrated fifty-four times; seven times followed by death; twenty-six transferred to other hospitals; one (elbow) discharged to duty; one readmitted for other disease; eighteen operated on, and one undecided. Besides these cases, forty instances of penetrating wounds of joint, appear in the returns as "part specified". which were followed by ten deaths.

I referred, in a former part of this paper, to cases in which the shoulder and elbow have been opened by gunshot. In the following case, the latter joint was completely opened, and is interesting, as showing what a distinction there is between such injuries produced by sabre wounds and gunshot. A dragoon, at the charge at Balaclava, was cut across the elbow of his sword arm, by a Russian. The olecranon was completely detached, and the joint opened. The wound was immediately closed, and in a very short time, the divided surfaces adhered or were united, and the inflammation of the joint being overcome, a most useful arm remained. The effects of a clean cutting instrument is, however, very different from those of balls.

In all cases of balls opening the lesser joints and not lodging in them, one thing has been most evident, viz., that when a free opening existed to the surface, the result of the wound or of the surgeon's interference, and when the articulation has been carefully fixed, the issue has been frequently favourable, whereas, if the original wound was small, or if the surgeon failed to enlarge it, so that effused fluids had not free exit, and if the least amount of movement was permitted, the event has been most disastrous. This has been a very well pronounced feature in a considerable number of cases which have come under my notice.

The hip joint, if penetrated by a ball, is generally so much injured as to demand amputation or excision. The knee has been the joint, the penetration of which has been most fatal. Eighteen cases of this injury are set down in the returns, with only four deaths, four amputations, and one excision, eight having been transferred to other hospitals, and one remaining undetermined. In this summary, I do not hesitate to say there is some very great mistake. The subject of penetrating wounds of the knee, is one I have paid some attention to throughout the war, and I have had several opportunities of examining cases *said* to present such wounds, but I am confident I am correct, when I say, that while *one* or *two* patients who have sustained this injury, *may* have recovered, that is the very greatest number who have. Many of the best informed surgeons in this army, declare they never saw a case of such injury from gunshot get well, and I do most firmly believe, that not one case of *bona fide* perforating wound of the knee has been cured. It is frequently extremely difficult to determine whether or not the joint has been entered, particularly if the ball be a small one, as in one of the cases afterwards related; and it often happens that when the joint appears to have been perforated, the bullet has either run superficially under the integuments, or coursed round the bones beyond the limits of the articulation. The only case to which it is difficult to apply these explanations presented itself to me at Scutari in 1854. In this case the ball had struck a man about to kneel, and fracturing the head of the tibia, was removed from the anterior aspect of the thigh. It is difficult to know how the joint could have escaped in this case, but the man recovered without amputation. In December 1854, the French had had in two of their hospitals, upwards of forty cases of penetrating gunshot wounds of the knee, and all died except those primarily amputated. I have since heard of one officer having been sent home by them, whose joint was traversed by a ball, but I have been unable to obtain the particulars of his case.

The rule to perform amputation as soon as possible in all cases of gunshot wounds penetrating the knee joint, is now, I believe, an axiom with both French and English surgeons. It is certainly very disheartening, as well as humiliating to professional pride, to think that amputation must be resorted to in cases apparently so slightly injured as many of these cases seem to be. I have long contemplated the laying of the articulation fairly open, at an early period, so as to permit of the extraction of all foreign bodies, and allow of a free escape of the pus which must be afterwards poured out, and the retention of which gives rise to the ulceration, severe constitutional symptoms, and rapidly fatal results which usually follow in such cases. The joint has been frequently widely laid open by cutting instruments, both primarily and for disease, and most satisfactory cures have been accomplished. The presence of the articular cartilages would be of little moment, as they would become absorbed, or they might be removed; and if the bones were kept in contact, and all discharges get free exit, I see no reason why we might not expect a successful cure. The risk is of course great, but is it worse than amputation? Many attempts have been made to save limbs in which the knee has been penetrated, but as I before said, I believe them to have all died. In civil life, wounds opening the joint are usually caused by cutting instruments, foreign bodies are seldom introduced, and the bones entering into the articulation, are little, if at all, injured. The wound being carefully closed, often adheres, and little mischief follows. But if the accident arises from gunshot, part of the clothes or other foreign bodies are usually carried in with the ball, and most commonly the ends of the bones are more or less fractured. Besides, in gunshot wounds, the ball's track must suppurate, and therefore cannot be retained closed without the hazard of accumulating pus in the cavity, and the importance of excluding the air from wounds of the knee, when practicable, is certainly great. The form of the joint makes the extraction of a foreign body, such as a ball, from it by the small aperture which in general leads into the joint in gunshot wounds, no easy task. In civil practice, some compound luxations of the knee are occasionally saved—injuries which look much more formidable than a gunshot wound of the joint, yet how desperate is the latter species of wound!

The particulars of cases in which the knee joint has been penetrated by balls, are so similar, that I will only give a few in detail. The first case was under my immediate notice, and from its presenting what might have been considered the most favourable features for conservatism, it gave me much interest. A young officer of the 63d Regiment was accidentally wounded by his own revolver during the reconnaissance in force at Kinburn, on the 21st October. He was half reclining on the ground, at the time of the accident, his left leg stretched and his right knee half bent. His pistol was in his right hand, and close to his limb. The muzzle was directed downwards, and obliquely inwards, towards the middle line of the body. The ball, a small conical one, weighing four drachms, entered at the outer and superior surface of the lower third of the right thigh, about three inches above the border of the patella, and lodged. The wound appeared to lead into the cavity of the joint, and an indistinct grating was said to have been communicated to the hand, on moving the patella from side to side. Some bloody greasy fluid escaped from the wound. On the patient's coming into camp, a few hours afterwards, I first saw him. There was then considerable swelling around the wound, but the motions of the joint were free, and unattended by almost any pain, and there was no swelling whatever of the articulation. There was one small spot over the head of the fibula, of which he greatly complained. Two tracks seemed to lead from the wound. One ran towards the inner side of the joint, and the other went along its external aspect; both were quite superficial. The position of the ball could by no means be determined. The patient's youth and strength, the absence of positive proof that the articulation had been opened, together with the possibility there existed of the ball having been deflected and passed down by the track along the external aspect of the limb, and lodged about the place so loudly complained of, in the neighbourhood of the head of the fibula, made us determine to wait. The most decided measures were immediately taken to ward off inflammation. The joint was fixed, and as he was taken on board ship, and put under the immediate care of my friend Mr White, of the 3d Dragoon Guards, every care was bestowed upon him. On the 24th, there was some swelling of the joint, accompanied with pain. The wound of entrance was beginning to suppurate well. Synovia had not been seen to escape. His pulse was 78 and soft, and his secretions were natural. The penetration of the joint was believed by all, still an attempt to save the limb was determined on. The usual local and constitutional antiphlogistic remedies, including evaporating lotions, fomentations, leeches and cupping, antimony and calomel, were diligently put into requisition. By the 30th, the joint was much swollen, and very painful on pressure. A spot, about the size of a shilling, over the head of the tibia, was exquisitely tender. He was feverish at night, when the pain was always much exacerbated An abscess formed among the muscles of the thigh, and continued to suppurate profusely after being opened. It had no connection with the joint. Slight hectic set in. The pain in the joint became lancinating and throbbing to a most harassing degree, particularly over the head of the leg bones and over the patella. The articulation assumed all the appearance and feel of a joint affected with white swelling. This was the state of things by November 19th, when amputation was finally decided on, and performed in the middle of the thigh, the state of the limb not allowing of its performance lower down. On the 1st December, he was transferred to the Castle Hospital at Balaclava, at which date the stump was suppurating kindly, but an erythematous blush overspread the integuments of the limb as high as the hip. This disappeared in a day or two, and the stump cicatrized, all except for a short way in the centre. His strength seemed to improve. On the 4th, he had a slight rigor, which was repeated twice daily. He gradually sank, had cold sweats, dyspnœa, diarrhœa, and died on the 8th. The end of the stump was hollow, and contained much pus, and half an inch of the end of the femur was dead. The lungs were congested, but no particular appearance beyond this was observed. The vessels of the stump seemed healthy. In the removed limb, the tissues around the knee joint were found much engorged, the articular cartilages and ligaments were quite disorganised, and the cavity filled with turbid purulent fluid. The ball lay below the patella, in the intercondyloid notch. Its pressure on the end of the femur, lower surface of patella, and head of tibia, was marked by complete erosion of the cartilages on these points. The bones were not otherwise injured. This case is highly interesting, not only on account of the difficulty found in detecting the ball, lying in the position it occupied, but also from the uncertainty which marked the line of procedure at the outset, the long absence of serious symptoms, and the conclusive nature of its teaching.

(2.) A paymaster-sergeant, belonging to the 38th Regiment, a dissipated nervous man, was admitted into this hospital on the 18th of June. While kneeling, he was struck on the knee of the limb not on the ground, by a piece of shell, which was supposed to have lodged. The wound appeared to lead into the cavity of the joint, and much injury of the head of the tibia had been evidently produced. The patient would not consent to the removal of his limb, and being a non-commissioned officer, his desire was complied with. The limb was slightly bent, and laid on a pillow, while local and constitutional remedies were promptly employed. For eight or ten days no disturbance, local or constitutional, supervened. The joint then began to swell, became glazed and painful, and his stomach became irritable. The pain was chiefly confined to a point on the inner side of the joint. He went on, one day better and another worse, the joint always becoming more hopelessly diseased, till July 15th, when the limb was removed. For a time he did well, but ultimately sank in the beginning of August. The head of the tibia was much injured and split into the joint, while part of its shaft was driven upwards into the cavity and indented the condyle of the femur. A piece of the head of the tibia was also driven downwards, and was impacted in its own shaft. The articulation was filled with a dirty pink coloured matter, but the cartilages were not diseased.

(3.) Miller, private, 31st Regiment, was admitted into this hospital on the 9th July. While his left leg was coming forward, as he marched down to the trenches, he was struck by a piece of shell on its outer side, over the lower end of the femur, and the external surface of the knee joint. The wound was about four inches long, little lacerated, but deep, and opened the joint. The wound was carefully closed by suture, the limb fixed, and cold was applied. Inflammation was violent by the 16th, notwithstanding the employment of every means to moderate it. The wound opened and synovia escaped freely. The constitution did not apparently sympathise much for many days after the local inflammation was considerable. Pus was poured out freely by the wound, symptoms of pyœmia rapidly set in, and he ultimately died on the 3d of August. The external condyle was splintered into the joint, the cartilages were eroded, but little fluid existed in the articulation. If the joint had been freely laid open after the wound had failed to adhere, might not a better result have been reasonably looked for? I have only seen one case in which the patella, being fractured by a ball, the joint was not at the same time opened. The bone was in that case "starred," but the ball did not lodge. The subsequent inflammation of the joint was slight, and the recovery perfect.

I before spoke of cases in which the ankle joint had been opened by musket balls. When saved, the recovery has been generally most tedious.

Amputation.—The long debated question, as to the comparative merits of primary and secondary amputation, has arisen chiefly from there being no distinction drawn between that operation as performed in civil and in military practice. John Hunter advocated secondary amputation in compound fractures of the thigh, while surgeons, whose experience was derived solely from the battle-field, have held, with few exceptions, to the superior advantages of primary operations since the days of Du Chesne and Wiseman. The experience derived from the war, which has just ended, has been, with both us and the French, very decided on this point, and the propriety of early operation is recognised as imperative in military surgery. The very obvious distinction between primary and secondary amputations has been, however, unaccountably overlooked in the form of returns furnished to the army, so that the absolute bearing of this question, as far as the results here obtained are concerned, is impossible. After Inkermann, a French surgeon told me they had lost 40 per cent. of their primary and 70 per cent. of their secondary amputations in all parts. Of 130 amputations of the thigh and leg (primary and secondary) I saw at one time in their hospitals, only 75 were alive three weeks afterwards, and many of these were dying of hectic.

Chloroform has certainly thrown a very great weight into the scale in favour of primary amputation. The fear of renewing the shock, which deterred so many from early operation, is now completely removed. Many amputations, particularly during the early part of the war, were performed in what Mr Alcock has termed "the intermediary period," and their fatality has been enormous—I do not believe one recovered. The dispatch of patients from the front after Alma and Inkermann, immediately after injury, prevented many cases being operated on primarily, while not a few had their limbs removed on board ship, on their way to Scutari, or soon after their arrival there, and as might be expected, subsequently died.

If we bear in mind the many circumstances which have militated against the obtainment of successful results during a great part of the past war, I think it may be safely said that the primary amputations have afforded a very fair amount of success, while it cannot be denied that the secondary have been equally unfortunate. The *teaching* of the past campaign, then, would seem to show the duty of early amputation, not only in those cases in which the necessity for the operation was evident, but even in doubtful cases, as it is beyond all question true, what Hennen so well expresses when he says, "I am well convinced that the sum of human misery will be most materially lessened, by permitting no ambiguous case to be submitted to the trial of saving the limb."

A better field for observing the results of amputations performed by the flap and the circular methods could not be found than that presented in the Crimea during the present war; as, though the former method of operating has been the favourite, still not a few surgeons, especially among the French, adhere to what Sir Charles Bell was in the habit of designating "the perfection of the operation of amputation." At the early part of the war, the circular method had certainly one conspicuous advantage over the flap, and it is with reference to this point that I at all mention the subject. The bad accommodation in front, as I have already had occasion several times to remark, caused the transference of patients, at an early period after operation, to the hospitals on the Bosphorus; and it often happened that the long heavy flaps of an amputated thigh became loose, and got so bruised in the transit by sea and land, that they afterwards sloughed as a consequence, while those stumps formed by the circular system, were little if at all injured. This fact was early recognised by the French surgeons, and the truth of the observation must have pressed itself on the attention of every one who saw many of the amputations at the time of which I speak. Latterly, when patients could be kept in the field hospitals till nearly recovered, attention to this matter has been of less consequence.

Amputation in all parts has been performed 1097 times, with 210 deaths in the Crimean hospitals, 203 discharged to duty (121 of these were amputations of fingers), 659 transferred to other hospitals, 5 readmitted for other diseases, and 20 remained undetermined on the 31st December.

If, to the number who died in the Crimea, we add one fourth of the cases transferred to other stations and remaining undetermined, as being a fair, but rather low, calculation of the number of those who died, then the per centage of death arising from amputation in all parts, will be over 34 per cent. If we exclude fingers, toes, etc., and only take into account cases in which the thigh, leg, arm, and forearm, in their continuity, or at their articulations, were removed, then the mortality will be over 44·8 per cent.

Secondary amputations were much more common during the early than during the later part of the war, and partly from this cause, and partly from the worse hygienic condition of the men at that time, the mortality, after amputation, was much higher, and as the returns from Scutari have not yet been received, the numbers adduced in these papers do not include them, so that perhaps a fourth is too low a calculation to assume as representing the number of those who died after being sent there.

The returns show one fact very broadly, viz., that the nearer we approach the trunk, the greater is the mortality. If different parts of the leg had been specified in the classification of the cases, this would, I believe, have been more evident. The series stands as follows:—The results obtained in amputations in the lower third of the thigh, and those at the knee joint, form a curious exception to the rest. In calculating the figures in this table, it is still presumed that one fourth of those patients "remaining" and "transferred" died,—

Upper Extremity.	Mortality.	Lower Extremity.	Mortality.
Forearm . .	23·2	Ankle Joint .	20·
Arm . . .	35·2	Leg . . .	40·2
Shoulder . ,	43·3	Knee Joint .	71·4
		Thigh, lower third	62·5
		„ middle „	53·7
		„ upper „	75·8
		Hip Joint . .	100·

In this table I have changed the numbers in the case of amputations of the lower and middle third of the thigh from those in the Army Returns, for reasons afterwards explained. Many interesting points of consideration present themselves on comparing these results with Malgaigne's table, bearing on the same point.

The lower extremity has been removed at the hip joint ten times, and all ended fatally within a short period of operation. One of these was performed by my lamented friend Dr Richard Mackenzie, with whom I first landed in the East in 1854. All these operations were primary, so far as I know. The French had one case of recovery from this fatal operation in the hospital at Pera during the winter of 1854. It was a secondary operation, and, as may be believed, the patient was an object of much interest. A second case in the same hospital died very unexpectedly, of hæmorrhage, on the sixteenth day, and a third on whom I saw the operation performed, died of exhaustion on the tenth day. Of these three cases, two were Russians. The mortality which has followed this operation is very deplorable, and seems far from pointing to the near approach of that happy era, so ardently longed for by a distinguished writer, when "it will be performed as readily as amputation at the shoulder."

Amputation in the upper third of the femur has been performed 58 times; 39 died in the Crimea, 18 were transferred to other hospitals, and 1 remained in hospital at the end of the year. I have sought diligently to see one of the cases in which recovery followed an amputation in the upper third of the femur, and though I have heard of several, I can only say I have as yet failed to meet with one, and so it has happened with several others who were only content to judge of such cases with their own eyes. However, if we accept these figures, and suppose that one fourth of those transferred and remaining ultimately died, then we get a mortality of 75·8 per cent. The French have abandoned this operation altogether, and say they have hardly saved a single case.

Amputation in the middle third has been performed 85 times; according to the returns, 32 deaths have occurred in the Crimea, 43 transferred to other hospitals, 7 have been discharged cured, and 3 remained undecided. The operation has been performed in the lower third 71 times, 37 have died here, 4 have been discharged cured, 28 transferred, 1 readmitted for other diseases, and 1 remained. A very great many of the operations classed as "lower third" ought to have been entered as "middle third" operations. I speak from observation when I say, that many operations have been performed ostensibly in the lower third, and classed as such, which were in reality done in the middle third, from the bone being sawn very high up, to make certain of securing a good covering of muscles. Consequently, I believe, if *one third* of the cases ranked as lower, be transferred to the column of middle third operations, we will arrive at the true statement with regard to the results of these operations here. It is in accordance with this view that the numbers stated before were given. *Without* marking this change, but still supposing that one fourth of the cases sent from the Crimea, or which remained undetermined in their results, died, the mortality in amputations in the middle third of the thigh has been 50·5 per cent., but with the transposition proposed it has been 53·7. In the lower third, *without* any change, the mortality has been 61·9, and with the transfer it has been 62·5. I need hardly add, that the numbers I myself believe to be those which represent the truth, are 53·7, and 62·5 respectively.

Taking amputations of different parts of the thigh (amputations at the knee-joint not included) then together, there have been in all 224 amputations, and a mortality of 62·9 per cent.

The results which have followed amputations of the thigh during different wars, taking primary and secondary together, and those operations on the same part which have been recorded in civil hospitals, as having been performed for injury, may be thus contrasted:—

Amputations of the Thigh.	Mortality.
Crimea,	62 9
Spain (Alcock),	62·
Waterloo,	55·7
Schleswic-Holstein,	60·15
Polish Campaign (Malgaigne),	100·
Mexican War,	100·
Parisian Hospitals (injury),	75·
University College, London (injury),	58·

From Mr Guthrie having given the results of thigh and leg amputations together, I cannot make out what was the per centage of loss during the Peninsular war in amputations of the thigh.

The immediate cause of death has been purulent absorption in the majority of cases of amputations of the thigh. This has been especially the case in secondary operations. The French surgeons in Constantinople were in the habit of declaring that they seldom found the pus collected in depôts, but that it was widely disseminated through the organs, muscles, and hollows of the bones. They lost a very great many from this cause. The heavy dressings they employ had, I suspect, no small share in this result. "Fenestrated linen," spread with lard, heavy pledgets of sharpie, two, sometimes three, double belts of thick cotton, frequently underlaid with sticking-plaster, and lastly, endless coils of a roller, was enough to serve as dressings, and poison the wounds not of one man merely, but of a whole regiment. Surely such a proceeding, in the words of Liston, "outrages nature and common sense." In our hospitals, however, even with the lightest possible dressings, the affection has not been rare. The outset of the disease has, in many cases, taken on more than its usual resemblance to ague, from the patients having been subject to attacks of intermittent fever, before coming under treatment. Secondary deposits have been most frequently found in the lungs. The custom of bringing the flaps together with many sutures, immediately after primary amputations, has been common, and has, I believe, shown itself to be prejudicial, as the flaps have in no case, so far as my observation has extended, united throughout their whole extent, but uniting along their edges, have left a large depôt of pus within, which must have proved exceedingly baneful. The visceral congestions, which are so apt to follow amputations of the thigh, have been more than commonly fatal in their tendency, from the presence, in the majority of cases, of the seeds of disease—in the lungs, kidneys, and intestine. Phthisis, and acute dysenteric affections, have been frequently the immediate cause of death; and, in at least two cases, I have seen all the symptoms of Bright's disease of the kidney rapidly developed after these operations. In the Crimea, during the heat of last summer, not a few amputations of the thigh were lost from hospital gangrene of a most rapid and fatal form. In the case of a few who lived long enough for the full development of the disease, hospital gangrene, in its most marked features, became established, but most of the men expired previous to any local death—overwhelmed by the violent poison. This occurred in four cases under my own charge, in the instances of men who had had a limb utterly destroyed by round shot or grape. In all, the knee joints were crushed, the collapse deep and prolonged, and the operation performed primarily in the middle third of the thigh. Three of the four were of very intemperate habits. All these cases took place about the same time at midsummer, when many other similar diseases appeared in camp. The wards, though full, were not overcrowded, and could, from their construction, be freely ventilated. The weather was sultry, the atmosphere surcharged with electricity, and the sirocco wind was prevalent. Wounds generally took on an unhealthy aspect for days, when this trying wind blew. Cholera too, was present in the camp. All my cases which died of this disease, seemed to be doing perfectly well up to sixteen hours, at the furthest, before death. Three of them were seized on the eighth day after amputation, just as suppuration was becoming established—the fourth died on the fifth day. The seizure and subsequent symptoms were identical in them all. In recording one I relate all. During the night previous to death, the patient was restless, but did not complain of any particular uneasiness. At the morning visit the countenance seemed unaccountably anxious, and the pulse was slightly raised. The skin was moist and the tongue clean. By this time his stump felt, as the patient expressed it, heavy like lead, and a burning stinging pain had begun to shoot through it. On removing the dressings, the stump was found slightly swollen and hard, and the discharge had become thin, gleety, coloured with blood, and having masses of matter like gruel occasionally mixed with it. A few hours afterwards the limb would be greatly swollen, the skin tense and white, and marked along its surface by prominent blue veins. The cut edges of the stump looked like pork. A burning stinging pain was loudly complained of. The constitution, by this time, would begin to sympathise. A cold sweat would cover the body, the stomach became irritable, and the pulse got weak and frequent. The respiration got short and hurried, giving evidence of the great oppression of which the patient so much complained. The heart's action gradually and surely got weaker, till from 14 to 16 hours from the first bad symptom, the patient ceased to exist. All local and constitutional remedies which could be thought of were equally powerless—nothing would relieve the system from the weight which seemed to crush it, or enable it to support the severe burden. Strong stimulants were the only remedies which appeared to stay the event for a moment. *Post-mortem* examination instituted shortly after death, showed the tissues of the limb to be filled with gas and loaded with serous fluid. The vessels leading from the stump were healthy, and in only one case had there been any local gangrene previous to death. The intestine in two of the four cases was much diseased. Was the cause which gave rise to this affection referable to "weakness or defective powers of action," arising from the patients' bad state of general health, or "excessive irritability or disposition to act," from their being of intemperate habits, or was it "excessive irritation or excitement to act," arising from the severity of the injury sustained?

A siege, like a naval engagement, presents particular facilities for deciding the question as to whether amputation, performed immediately after the receipt of an accident so severe as beyond all doubt to call for such an operation, is preferable to waiting, as Mr Guthrie and others recommend, till after the succeeding shock has subsided. Chloroform has naturally changed the bearing of this question. Its influence in supporting the vital powers and obviating shock is now so well established that we cannot but regret that so few attempts have been made to make "the knife follow the ball" during the past campaign. Either the patient has not been seen early enough by a surgeon having the necessary authority and resolution to operate instantaneously, or the surgeon so present has been of a different way of thinking to a very great many of the medical men of largest experience in this army, as very few such operations have been reported. Perhaps the arrangement followed during the siege, by which only assistant-surgeons, who, by the regulations of the service, are not allowed, except under very peculiar circumstances, to operate, were sent into the trenches, where such operations could be alone performed, had most to do with this result. I remember several cases in which such steps were obviously called for. In two instances, officers had their limbs carried away at the knee by round-shot, and so slight was the shock at first, that the one hopped about for some time on the unwounded leg, and the other could hardly be persuaded he had been so severely injured as to have lost both legs. They were sent to the rear unoperated on. One died on being taken off the cacolet which conveyed him to the hospital, and the other arrived so deeply collapsed, that nothing could be done for him. If amputation under chloroform had been practised in both cases, before shock was established, a favourable result might, I think, have been confidently looked for in both cases. These cases are not solitary ones. That the state of the system known as "shock," is not established in some cases so soon as it is in others, appears pretty evident from the observations of most surgeons, so that it is probable that some cases are greatly better adapted for immediate operation than others. The difficulty is always to be sure that no fatal internal lesion has been at the same time sustained, as that more palpable one for which the operation is undertaken.

General Hospital in Camp before Sebastopol,
February 1856.

ARTICLE III.—*Note on the occurrence of Paralysis and Muscular Atrophy in the Horse, in connection with Arterial Obstruction and Obliteration.* By the late JOHN BARLOW, Professor of Anatomy and Physiology in the Veterinary College, Edinburgh.

(*Read to the Medico-Chirurgical Society of Edinburgh by Dr W. T. Gairdner.*)

[The late John Barlow was known to many of the members of this Society. Although he did not frequent its meetings, nor interest himself directly in the progress of practical medicine (except in his own department), the eminently scientific character of his mind led him to consider all inquiries bearing upon anatomy and physiology, as well as on pathology in its more general sense, as being connected together, and as therefore falling within the range of his studies. He sought, therefore, the society of medical men, not merely because he found in our profession men with whom his intellectual and moral nature permitted him to sympathise, but because he was able to give to them, and to receive from them, such information as was found to be indispensable to both parties, on the common ground of their scientific pursuits. I may be permitted to take this opportunity of giving expression to my own personal regard for Mr Barlow, derived from somewhat greater opportunities of knowing him than the majority of us. Cut off, as he was, at an early period of his career, and with a great portion of his work unfinished, none but his personal friends can know how great is the blank left by his loss. Mr Barlow was one of those men whose character rises in value to the world with every year of life, but who, to use a common phrase, do not do themselves justice at the outset. It was characteristic of him to do things, not in a showy, but in an exact and conscientious manner. He did not spring forward to generalized conclusions with great rapidity; but he laid hold on the broad and solid masses of attainable truth around him, so firmly and so generally, that there was scarcely a subject to which he had given his attention, on which he did not know more than he was readily brought to profess. And what he knew was known once for all; it did not require the paring down and polishing which is usually the result of discussion; for the simple reason that he performed all this process in his own mind; anxiously looking at everything he studied from all possible points of view, and refraining from giving in his adhesion to any opinion, till he was well assured that it was not merely a stage towards the discovery of truth, but the very truth itself. For this reason, in science, as in private life, Mr Barlow's lightest word was always sure to be a well-considered and true word. He was never seduced by a favourable opportunity of displaying his knowledge into any premature or hasty statement of what he had imperfectly observed. Perhaps he had even too little of the natural and proper desire to gain credit for his own observations; and when he announced what he knew, he did so with a brevity which was scarcely for the advantage of science. Had he lived to complete his projected work on the anatomy and physiology of the horse, to which, and to the teaching of his class, almost all his scientific labours were directed, his great merits would have been duly appreciated.

The following note was one which I received from Mr Barlow, very shortly before his fatal illness. Notwithstanding its brevity, I think it due to the memory of my late friend to bring it under the notice of the Medico-Chirurgical Society; the more so, as I had requested him, and he had consented, to read to the Society a communication on the subject, of which this note, illustrated as it is by the beautiful preparation which he has left in the hands of Professor Dick, are all that can now be placed on record. I have only to add that the subject is, I believe, to some extent, a new one in veterinary medicine,[1] and will, no doubt, prove interesting to those who are acquainted with the numerous observations now existing as to the obturation of arteries in the human subject. W. T. GAIRDNER.]

1, Pilrig Street, Dec. 12, 1855.

MY DEAR SIR,—I have recently met with a few instances in which arteries of considerable size have been almost entirely plugged up with fibrinous clots, firmly adherent to their walls. In these cases during life, there was sometimes visible but unexplained atrophy of certain muscles, in regions specially supplied by such vessels; and sometimes when a main trunk, such as the aorta posterior, became thus plugged, there was palsy of the hind parts (of course I speak of the horse). At first I fancied these things to possess no material interest, and did not preserve the vessels. However, this day week, a pony, greatly disabled behind, but not completely paralytic, was brought for dissection. I found a large plug of adherent fibrin in the aorta post., just where this vessel divides into the two iliacs on each side. (In the horse, you will remember, there is no "common iliac," but the aorta post. divides into the internal and external iliacs.) This plug was firmly adherent to the roof of the artery, that is, to that part lying in contact with the vertebræ. It was not sufficiently large to obstruct the stream of blood completely, but it must have caused a material lessening of the stream. The internal iliacs, however, were *completely* plugged up, and the outside of the fibrinous clot was adherent to their walls—in many places all the way round. In one place especially, a calcifying process is taking place in the coagulum. If such things are not already too familiar to you, I wish you would look in at Clyde Street any day before two P.M., for the condition is to me somewhat new.—Yours ever truly,

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[1] Since the above was read to the Society, my attention has been directed by Professor Simpson to a reference in Romberg (*Syd. Society's Transactions*, vol. ii., p. 247), which shows that cases of this affection in the horse are on record in the German journals. W. T. G.

JOHN BARLOW.

ARTICLE IV.—*Experimental Notes on Glycerine.* By W. LAUDER LINDSAY, M.D., Perth.

SOME time ago, the perusal of various elaborate and interesting papers, by Mr Wilson,[1] the enterprising and able managing director of Price's Patent Candle Company, London, on the products of the manufactures of that company,—and especially on the sweet oily principle, glycerine, and a consideration of the chemical composition and properties of the latter substance, suggested to me the question, Whether glycerine,—then and to a great extent still, a waste product of manufacture, or applied only to subordinate or insignificant uses,—might not be employed dietetically and medicinally in a similar way to cod liver oil, and other animal and vegetable oils? This led me into an experimental investigation on the possible applications of glycerine in medicine: and my results, though limited, are sufficiently favourable to warrant me in, at least, recommending it as a worthy subject of inquiry to the experimentalist, and apparently as a useful addition to the pharmacopœia of the medical practitioner. The subjects of experiment have been, 1st, myself—2d, eight patients, four of either sex, labouring under physical emaciation and debility, without specific physical disease—and, 3d, various of the lower animals, including rabbits, fowls, and mice. The following notes, however, are chiefly suggestive in their aim. My opportunities for pursuing experimental investigations are limited by circumstances which I need not explain, and my object shall have been fully answered, if I can succeed in attracting to a consideration of the properties and uses of glycerine, the attention of practitioners, who have a wider field of observation and better scope for original research. It is far from my intention to laud glycerine as a panacea, as is too apt to be done in the description of the virtues of new remedies; nor do I think I have extravagant or transcendent views of its nutrient qualities. The results at which my own few observations point are simply :—1st, That, administered internally, it apparently acts chiefly as a nutrient, increasing the weight and improving the general vigour of the body, but partly also as an alterative. 2d, That applied externally, it appears to act as a stimulant emollient, combining the properties of a spirit and an oil; and 3d, That its chemical properties, especially as a solvent, render it very useful in pharmacy. The experience of others has already determined that it possesses antiseptic and other qualities, which render it susceptible of many economical applications in the arts. I should hesitate in placing it *pari passu* with cod liver oil as a nutrient; but if it can be established that it is possessed of nutrient or fattening properties at all, it cannot fail to become a useful adjunct to, or substitute for, that oil, and other animal and vegetable oils, in cases where they are contra-indicated. In speculating on the actions or *modus operandi* of glycerine, as contrasted with the ordinary animal or vegetable oils used as food or in medicine, we must bear in mind the chemical distinction between them :—the former is one only of the elements of ordinary oils and fats, while the latter are compound substances, often containing matters severally possessed of therapeutic actions.

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[1] Especially "On the manufactures of Price's Patent Candle Company," read before the Society of Arts, London, and published in their journal, January 25th, 1856; and "a Paper on a new process of obtaining and purifying Glycerine," read before the Meeting of the British Association at Glasgow, September, 1855.

In order the more distinctly to place before my readers the principles or properties upon which the applications of glycerine are founded, it will be advisable to make a few prefatory remarks on its chemistry, and on the different modes of preparing or procuring it. In doing so, I shall draw largely on the excellent papers of Mr Wilson, before alluded to. I shall classify my notes under the following heads :—

I. The chemical history of glycerine, or the modes in which it has been, and is, prepared, or manufactured.
II. Its chemical composition, and chemical and physical properties.
III. Its applications in medicine and pharmacy.
IV. Its applications in the arts.

In order to render the subject more complete than a mere narrative of isolated experiments could make it, I shall endeavour to embody, so far as my information admits, the chief observations which have been hitherto made on the properties and economical applications of glycerine in Britain, on the Continent, and in America.

In 1789, glycerine was discovered by Scheele as a waste product in the preparation of common lead plaster: it was so named from its most prominent characteristic, sweetness—from γλυκυς, sweet. About a quarter of a century subsequently, in 1811, the French chemist Chevreul began a series of researches on the composition of fats and oils, which were collected and published in 1823.[1] He found it to be the common base of neutral fats and fixed oils, in which it is combined with various fatty acids. His researches probably form the basis of all the progress that has been subsequently made in this department of organic chemistry. The most familiar compounds of glycerine with fatty acids, are stearine, margarine, and oleine, which are respectively stearate, margarate, and oleate, of glycerine, or compounds of glycerine with stearic, margaric, and oleic acids. These substances are present in different proportions in different fats and oils, stearine being most abundant in the hard or solid fats, margarine in the soft fats or butters, and oleine in the fluid oils. The first is plentiful in the fat of beef and mutton, and in some vegetable fats; the second in human fat, and olive oil; and the third in olive or almond oil. When ordinary fats and oils are heated with alkalis, they give rise to soaps,—with litharge, plasters:—in both cases the fatty acids are detached from their state of combination with glycerine, which is thus set free. It has recently been found by manufacturing chemists, that fats or oils can be equally decomposed into glycerine and the fatty acids, either by the combined action of concentrated sulphuric acid and a high temperature; by the action of water under great pressure and at a high temperature; or by the action of steam under a comparatively moderate pressure. The processes or manufactures in which glycerine is a product are the following:—

I. The preparation of lead plaster.
II. The manufacture of soaps.
III. The manufacture of stearic acid candles.
    a. By lime saponification.
    b. By sulphuric acid saponification.
    c. By the action of high-pressure steam.

Until a somewhat recent period glycerine was chiefly procured in the making of lead-plaster. Olive oil, litharge, and water, were boiled together; the litharge and the fatty acids of the oil combined to form a plaster, while the glycerine was left free in the solution. Prepared by this process, it required purification by sulphuretted hydrogen to free it from lead, and concentration by evaporation. Now, however, glycerine is known principally as an incidental product in the manufacture of candles, consisting of fatty acids, which are generally sold as stearic acid candles. Glycerine is found to reduce the illuminating power of candle material; its presence in ordinary tallow is the reason why tallow candles require three times the size of a wick, to give the same amount of light as stearic candles of equal dimensions. Hence it has long been a matter of great importance to candle manufactures, to get rid of this substance—to separate it from the fatty acids with which it is combined in tallows, fats, and oils, by cheap and easy processes. In all the cases which I have mentioned, glycerine has been regarded by the manufacturer, not only as worthless, but as a most deleterious substance, of which he must get rid even at a great expense and much trouble. It was long before glycerine became economically applied. "Hundreds of tons," says Mr Wilson, "have been, and are yearly thrown away;" but he adds, "the despised glycerine is now more valued, and sells at a higher rate, than its early prized associate, the stearic acid." . . . . "The refuse of one year may be the most valued product of the next. As in all other pursuits involving researches into the works of God, we see around us wonderful wisdom, order and variety, and before us a field for man's labour until the end of time." Under the management of this gentleman the candle manufacture has made astonishing progress during the last few years; and now it is one of the most perfect and illustrative specimens of a purely chemical manufacture. The company, of which he is the representative manager, was probably the first to introduce vegetable fats and oils, products of tropical countries, into the manufacture of candles, as substitutes for animal tallow—and the result is, the beautiful stearic acid and composite candles of the Belmont works, Vauxhall, London. To this gentleman, also, I believe, we owe the production of glycerine chemically pure and dietetically and medicinally valuable. Until the production of a pure glycerine, at a comparatively cheap rate, this substance could not be applied in medicine as an internal remedy.

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[1] "Récherches chimiques sur les corps gras."

Lime saponification was first employed to separate glycerine from ordinary tallows, for the purpose of making stearic acid candles, by MM. Motard and Milly in Paris, in 1833; and the process was subsequently adopted by English candle manufacturers, and among others by Price and Company, London. "Tallow was boiled up with thin cream of lime, which caused the fat acids, by superior affinity, to forsake their glycerine to combine with the lime, the glycerine dissolving in the water; this combination was then broken by means of sulphuric acid, which, seizing on the lime, set free the fat acids; these were then separated, the liquid from the solid, by means of pressure. This was an expensive process, as to each cwt. of tallow, 14 to 16 lbs. of lime, and 28 to 32 lbs. of sulphuric acid were employed, and the candle material, stearic acid, when obtained, was only in the proportion of two parts to five of the tallow employed, and the other product of the tallow was a comparatively refuse oil."[1] Besides being an expensive mode of preparing stearic acid, it more concerns us to know that the glycerine so obtained was generally impure, containing especially salts of lime. In Price's patent candle works, says Mr Wilson, "our first step was to do away with the lime process of saponification, and with it our only source of impure glycerine. By our first improvement in separating the fat acids from neutral fats, the glycerine was decomposed by the direct action of concentrated sulphuric acid, at a high temperature; and all that remained of it was a charred precipitate." "Our process of sulphuric acid saponification was as follows. . . . Six tons of the raw material, usually palm oil, though occasionally we work cheap animal fat, vegetable oils and butters, and Japan wax, were exposed to the combined action of 6$\frac{3}{7}$ cwts. of concentrated sulphuric acid, at a temperature of 350° Fahrenheit. In this process the glycerine is decomposed, large volumes of sulphurous acid are given off, and the fat is changed into a mixture of fat acids of a very dark colour, with a high melting point. This is washed to free it from charred matter, and adhering sulphuric acid, and is then transferred into a still from which the air is excluded by means of steam. . . . Distillation separates the black acidified palm oil into the pure fat acids, which come over in vapour, leaving the charred matters and other impurities, which are not volatile, behind in the still. All who have blown out a candle know the unpleasant smell of fatty matter distilling in contact with the air. That tallow candles give off a more offensive vapour than stearic ones is owing to the presence of glycerine. . . . The distilled material is either used for making the cheaper descriptions of candles, or is subjected to hydraulic pressure, first at the temperature of the air, and then at a high heat. That which remains after hot pressure is used, after removing, by diluted acid, any rust it has taken up from the iron press plates, for making what are known as Belmont sperm candles." But this process produces a considerable waste of glycerine, and a partial decomposition of the fatty acids by the sulphuric acid employed. In 1854, an American chemist [Mr Tighlman] patented a process for separating fats into their component acids and glycerine, by subjecting them to the action of water at a high temperature and under great pressure. Experimenting on his ingenious process, Messrs Price & Co. found that the same result could be equally well obtained by simply blowing steam at a high temperature, through the fat. "In our new process the only chemical agents employed for decomposing the neutral fat, and separating its glycerine, are steam and heat: and the only agents used in purifying the glycerine thus obtained, are heat and steam: thus all trouble from earthy salts or lead is escaped. . . . Steam at a temperature of 550° to 600° Fahrenheit, is introduced into a distillatory apparatus, containing a quantity of palm oil. The fatty acids take up their equivalents of water, and the glycerine takes up its equivalent: they then distil over together. In the receiver the condensed glycerine, from its higher specific gravity, sinks below the fat acids. Sufficient steam must be supplied, and the temperature regulated, otherwise the elements of the glycerine do not take up their equivalent of water, and acroleine is evolved, a body of a very different character, an acrid eye-inflaming vapour appreciated only by those who have had the misfortune of an experimental acquaintance with it."[1] From the nature of the agents employed in decomposing the fats or oils, the glycerine obtained by this process is exceedingly pure and well fitted for medicinal or dietetic use. The best variety is subsequently concentrated, and sometimes—if discoloration or impurities exist or are suspected—re-distilled. We have thus seen that glycerine may be prepared from a great variety of animal and vegetable fats, butters, and oils: in all cases its chemical composition, and chemical and physical properties are the same.

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[1] Journal of Society of Arts, January 25, 1856, p. 148.

Chemically speaking, glycerine is a hydrated oxide of a radical called glyceryle. The chemical formula of these substances does not seem to have been accurately determined, or uniformly agreed upon, by chemists. Gregory gives the formula for glyceryle as $C_6 H_7 =$ Gl., and for glycerine, $C_6 H_7 O_5 + Ho$: while Garrod states the formula for the former as $C_6 H_3$.[2] Pure glycerine is a syrupy, viscid liquid—colourless, inodorous—having a pleasant saccharine taste, accompanied, in concentrated specimens, with a certain degree of pungency. Its most important chemical and physical properties are the following:—

I. Its sweetness and pleasant taste.
II. Its freedom from colour and smell.
III. Its blandness and freedom from all irritant ingredients, and from those principles in ordinary oils, which frequently nauseate or purge, when administered internally.
IV. Its ready solubility in, or miscibility with, water, alcohol, oils, and other fluids, in all proportions.
V. Its solvent action on certain salts, alkaloids, etc., and its property of suspending others in a convenient form for administration as medicines.
VI. Its volatilizability, or capability of being repeatedly distilled.
VII. Its antiseptic property, or power of preserving animal and vegetable tissues or substances.

On evaporating down specimens of glycerine, the water which most of them contain is first driven off, and then the glycerine itself begins to volatilize. It makes itself perceptible in the atmosphere, as a pungent sweet-tasting vapour, which becomes condensed on the lips, and is sometimes disagreeable to the eyes. As evaporation proceeds, the liquid becomes more syrupy and viscid—brownish, and finally black: it now begins to be decomposed, and gives off acrid vapours of acroleine, which act as an irritant to the eyes. When rapidly boiled down, it yields an inflammable gas, which is generally set fire to by the flame of the spirit-lamp, unless the evaporation is carefully conducted. M. Cap, the author of one of the first and best memoirs on its medicinal uses based on its chemical and physical properties,[1] found that glycerine dissolves the vegetable acids—the deliquescent salts—some alkaline chlorides, and some alkaloids: potash, soda, iodine, bromine: the sulphates of potash, soda, and copper: the sulphurets of potassium and lime: the nitrates of potash and silver: the iodides of potassium, sulphur and mercury: oxide of lead, and many other chemical agents used in medicine. Morphia dissolves in it in all proportions, even in the cold; but sulphate of quinine, and some other alkaloids, or their salts—such as brucia, strychnia, and veratria, are only partially dissolved, though they are presented in a most convenient form as medicinal agents. "We have now," says M. Cap, "if not medicinal oils with a vegetable alkaloid base, at least a series of new preparations, which will fulfil a perfectly analogous use in therapeutics."

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[1] "A paper on a new process of obtaining and purifying glycerine," pamphlet printed for private circulation, p. 5.

[2] "On cod-liver oil and its substitutes," review in *Brit. and For. Medico-Chirurg. Review.* Jan. 1856.

The impurities of commercial glycerine constitute a subject of great importance in relation to its internal administration as a dietetic or medicinal agent. It may be stated broadly, that few specimens of commercial glycerine are quite pure: but the impurities vary in different cases, and are not equally dangerous. Specimens of the so-called "pure glycerine obtained from the best sources in London, so recently as last January" [1855], says Mr Wilson, "contained in every case more or less impurity." Mr Hamilton of Liverpool[2] found in specimens of "pure glycerine," procured from several of the best chemists or druggists in Liverpool, *lead* in considerable quantity,—in greatest quantity, indeed, in a specimen labelled "pure," sold at double the price of common glycerine, and warranted free from lead! This fact of itself ought to render practitioners extremely cautious in prescribing, for internal use, a glycerine which they have not ascertained to be essentially pure—or at least, to be free from all dangerous or noxious impurities. The impurities of glycerine are generally stated to be lead—in specimens prepared by the lead-plaster process; lime and earthy salts, in specimens produced by the lime saponification; and bad smelling volatile fatty acids—the result of imperfect purification. This does not quite accord with my own experience. In order to determine for myself, the quality or purity—as well as to ascertain the various prices—of commercial glycerine, I procured specimens from all the chemists and druggists in Perth, who sold or kept it. It is necessary to mention, that none of these specimens were the concentrated glycerine of Price's Candle Company. So far as I could learn, they were chiefly procured from wholesale druggists in London, Edinburgh, or Glasgow. In no case could I learn the chemical source or the process of manufacture. In conjunction with Dr Stirling of Perth, who repeated and confirmed my results, I submitted these specimens to a rough qualitative chemical analysis, and found the following chief classes of impurities:—

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[1] *Journal de Pharmacie et de Chimie*, Feb. 1854: and *Chemist*, April and October 1854.

[2] *Chemist*, May 1855.

I. Water.
II. Volatile fat-acids.
III. Alkaline earths, or earthy salts—as lime and magnesia.
IV. Metallic salts—as those of iron and antimony.
V. Colouring matters.

Glycerine could only be obtained from the better class of druggists: it was kept in stock solely for external use, chiefly for dropping into the ear in cases of deafness. The stock in hand, in all cases, was comparatively small, the glycerine being little in demand. Some of the smaller druggists evidently were not aware even of the existence of such a substance as glycerine. Since the date of my purchases, the most respectable druggists in Perth have obtained supplies of Price's concentrated pure glycerine,—speculating apparently on its use both as an internal remedy, and an external appliance.

All the specimens purchased evidently contained water to various extents. The proportion of water present could be roughly estimated by the viscidity of the fluid. The different densities became evident by pouring the various specimens successively into a bottle, without agitating: a series of layers or strata of glycerine, which generally differed somewhat in colour, was the result. All the specimens were inferior in density to Price's concentrated glycerine, which, as the purest and best glycerine I have met with, I shall take as a standard of comparison.[1] Mr Wilson gives as the specific gravity of Price's pure concentrated glycerine, at the temperature of 60° Fahr., 1·240, containing 94 per cent. of anhydrous glycerine; but, he states, it may be concentrated to a liquid of density 1·260, containing 98 per cent. Gregory, in his "Organic Chemistry," gives the sp. gr. of pure glycerine at 1·252. A specimen purchased in Perth, at about fourpence per oz., was of sp. gr. 1·207; while one procured in St Andrews, at one shilling per oz., had sp. gr. 1·247. While water is undoubtedly an almost constant impurity in common glycerines, it would appear that they sometimes contain oils, or other fluids, which raise the density considerably above that of anhydrous glycerine. Dr Gardner, for instance, speaks of using glycerine of sp. gr. 1·280,[1] which must have been adulterated, or, at least, must have contained impurities of the class I have mentioned.

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[1] I have to acknowledge the courtesy and kindness of Mr Wilson, one of the managing directors of Price's Patent Candle Company, in not only forwarding to me gratuitously, a supply of his best glycerine for experimental purposes, but in furnishing me with copies of his papers, and in giving me much valuable information on the chemistry and commercial history of glycerine, in private letters.

The labels on the large bottles of Price's pure glycerine [containing about 6 lbs.], as supplied direct from the Belmont Candleworks, Vauxhall, London, bear the following inscription:—"The pure glycerine of Price's Patent Candle Company, being obtained by distillation under their new patent processes, is free from the lead and earthy salts, and bad smelling volatile fatty acids, present even after the usual processes of refining in ordinary glycerine obtained from lime saponification, and in the process of lead-plaster making." This glycerine may now be obtained from the higher class of druggists in all our larger towns. It is also advertised as "New concentrated distilled glycerine, without unpleasant taste or smell," which "may now be had from all druggists, in shilling bottles, with sealed corks."

Most of the specimens had more or less of a disagreeable smell, arising from the presence of volatile fat acids. This species of impurity is most readily detected by rubbing a few drops of the glycerine on the dorsum of the warm hand; if such acids exist in it, a disagreeable smell, resembling that of rancid butter or oil, immediately becomes perceptible. Few specimens of commercial glycerine can resist this test; but Price's concentrated glycerine is quite devoid both of smell and colour. Several specimens had a brownish or yellowish tinge, but none of them to a very marked extent.

In the majority of the specimens examined, we found sulphuric and hydrochloric acids, or sulphates and chlorides, sometimes in considerable abundance; and the bases, magnesia and lime, generally in small amount, sometimes only a trace. It may be remarked, that the same impurities existed in the well-water used here, which was examined at the same time.

Six specimens of common glycerine (which did not include Price's pure glycerine) were likewise purchased from various minor druggists in the west end of Edinburgh: in none of the cases could the process of manufacture or the commercial source be ascertained. Contrasted with the Perth specimens, they were much more impure in regard to sulphates and chlorides, lime and magnesia, which, in some cases, were present in large amount. In five of the six specimens, sulphates, chlorides, and lime, were more or less plentiful: and in three magnesia was easily detected. Three-fourths of one specimen consisted of a common vegetable oil,—apparently almond oil,—which floated above the glycerine. My attention had been called by my correspondent to the fact, that the apothecary who sold it was tipsy at the time, and that he had poured fluids from two different bottles into my specimen phial. In another case, the phial being quite clean when the glycerine was introduced, its interior was found coated with a resiny-looking substance on reaching me. The two latter specimens were among those charged 6d. per oz.

In none of the samples analysed did we find the slightest trace of

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[1] *Lancet*, June 23, 1849.

lead. This, it is of importance to notice, as lead has been currently stated to be one of the most likely impurities in glycerine prepared by the old processes, especially in the manufacture of plaster; it is an impurity of a most dangerous character in regard to the internal administration of glycerine. But an impurity equally dangerous was present in one case, viz. *antimony*, in notable amount. The specimen of glycerine in which it occurred was purchased from one of the minor druggists, by whom it was kept for dropping into the ear, and was said to have been procured from a wholesale house in London. Different specimens were repeatedly tested, and always with the same, and very distinct, results. After the addition of some distilled water, and a few drops of pure hydrochloric acid, the glycerine gave a copious orange-red precipitate with solution of sulphuretted hydrogen. This precipitate was dissolved in a little hot, pure hydrochloric acid, and introduced into a Marsh's apparatus, in which hydrogen was being generated from a mixture of sulphuric acid, water, and granulated zinc. Stains of metallic antimony were obtained on the lid of a porcelain crucible, which were dissolved by hydrosulphate of ammonia, but unaffected by a solution of chloride of lime. On applying heat to the exit tube of the apparatus, a ring of non-volatilizable metallic antimony was deposited at the heated point. The presence of such an impurity, in comparatively large amount, is sufficient to indicate the caution requisite in prescribing, for internal use, commercial glycerine prepared by old processes, and kept by druggists chiefly for cases of earache or deafness. The glycerine ought, in all cases, to be tested by the practitioner using it, or it should be procured from a source above suspicion. The only glycerine which I can recommend, from personal experience, as comparatively pure and absolutely safe, is the pure concentrated glycerine of Price's Candle Company, to which I have already so frequently alluded. It can be readily diluted to any extent, and medicinal agents can be added at the option of the practitioner. The importance of an unsuspected impurity, like antimony, in a naturally bland innocuous fluid, like glycerine, in connection with legal medicine, is self-evident. Such instances have a close bearing on the medico-legal question of poisons, especially on their *wilful* administration by poisoners, *versus* their being ignorantly, innocently, and accidentally swallowed by the poisoned themselves. Another of the specimens of glycerine examined by us contained *iron* in easily appreciable amount. Under the above circumstances, it is perhaps fortunate that practitioners have hitherto been very wary of using glycerine as a dietetic agent; but now they need run no risks, if they are only moderately cautious, and will give a reasonable price for a pure article. It did not always happen that the highest priced specimens purchased by myself were the purest and best; nay, the reverse frequently obtained. Some of the cheapest glycerines I procured contained nothing that rendered them unserviceable or dangerous for ordinary purposes, or even for internal use. They contained no metallic salts, though alkaline earths were generally present in small amount; they were devoid of colour, though not of odour, and their chief impurity was water, their sp. gr. being comparatively low. It is important to know that its valuable property of volatilizability comes to our aid as a means of purifying glycerine; by repeated distillation we may free it from all the impurities which I have indicated. Druggists are probably not sufficiently aware of this fact. It might be made the means of greatly increasing the supply, and reducing the price, of pure commercial glycerine.

CASE BOOK.

XXIV.—*Cases of Gun-Shot Wounds.* By ANGUS J. MACKAY, Assistant-Surgeon to the 2d Battalion of the Royals.

(*In continuation of those related at p.* 926.)

III. *Extremities.*

Wound of Hand.

May 17th.—Private William Berry, æt. 23, was wounded in the hand by a musket ball, while in the trenches, on the night of the 16th May. On admission into hospital, on the morning of the 17th, there are two wounds of the left hand; one, that of entrance, is on the dorsal aspect of the hand, at the head of the metacarpal bone of the ring finger. The other, that of exit, is on the palmar aspect opposite the knuckle of the fore finger. The heads of the metacarpal bones of the ring and second finger are fractured, and there is great swelling and tension. These prevented the use of a splint or bandage, and the treatment consequently consisted in the continuous application of cold water dressing.

Treatment.

Bowels being confined, a purge was administered. 18th. Swelling much reduced. The bones were now placed in opposition, and a splint was applied on the palmar aspects, commanding the joints of the fingers and wrist. Cold applications were still continued. This treatment was persevered in up to the 29th, at which date no crepitus could be made out, and at which date also, the lotio rubra was substituted for the cold water. On the 31st he was transferred to the General Hospital, Balaclava, and has since been sent to England, with the involved joints stiff.

Result.

Wound of Hand.

May 14th.—Private Fred. Robinson, æt. 18, was wounded by a musket ball while in the trenches. On examination there are two wounds of the left hand; the ball entering on the palmar, and passing out on the dorsal aspect, shattering, in its course, the second metacarpal bone, and involving the joint between it and the finger. He does not complain of much pain. On examination by a probe, several small pieces of bone are felt detached, and removed. Cold to be continuously applied. Bowels confined—to have a dose of Ol Ricini. 16th. The hand to-day is somewhat swelled, and he complains much of pain, which prevents him sleeping—cold water dressing to be continued, with a splint on the palmar aspect, controlling joints of wrist and fingers, and retained by a bandage. *Vespere.*—He is very restless and irritable, and complains much of pain—an anodyne draught is ordered. 20th. The swelling has greatly increased, and distinct fluctuation is perceptible; an incision on the back of the hand had the effect of evacuating a large quantity of matter. The whole hand was thereafter enveloped in a poultice. 22d. Pain and swelling less—still considerable discharge. 26th. Swelling increased—the hand feels tight—bowels confined, and opened by Haust. Oleos. 28th. Great swelling and tension, with painful throbbing. Another incision having been

Formation of Abscesses.

made, a large poultice was again applied, and an anodyne draught ordered to be administered at bed time. 29th. The incision made yesterday has greatly relieved all the symptoms. He complains of the poultice being heavy, and spongiopiline is consequently substituted.

From this date he steadily got better, but from anchylosis was rendered unfit **Result.** for further active service, and was invalided to England, after fifty-four days treatment.

June 8th.—Private John Moore, æt. 39, was wounded by a musket ball at the attack on the Quarries, on the 7th June. On admission into **Wound of Arm.** hospital, there is a compound comminuted fracture of the right arm, near the shoulder, the ball having entered externally through the lower part of the deltoid, and having passed out below the right clavicle in front. Neither the shoulder-joint nor the lungs seem involved, and it was consequently decided to try and save the arm, as the patient was a strong, healthy man. Several small pieces of bone were removed, and a gutta percha splint, embracing the shoulder, was applied, with cold water dressing. The arm was then put in a sling, the elbow being bound to the side. 9th. Feels tolerably easy to-day, but passed a restless night; an anodyne draught was ordered at bed time. 10th. Discharge from the wound is copious, but of a healthy character—pulse quiet—bowels regular. 11th. Is much the same, doing very well. 14th. Diarrhœa appeared to-day, and he complains **Diarrhœa.** much of pain in the arm—to have an opiate at night. 15th. Diarrhœa continues—several pieces of bone were removed—arm very painful—the opiate to be repeated. 16th. A piece of blue cloth was found in the wound to-day, and the pus seems burrowing its way up and down the arm—he complains of great pain—diarrhœa still continues—Tinct. Catechu is administered along with the opiate, and repeated during the day; he after this got worse and worse, and became too weak for any operation; **Hæmorrhage.** secondary hæmorrhage occurred and recurred, and was only checked by stuffing the wound with lint and applying pressure over the subclavian; the discharge became more abundant, but unhealthy and mixed with blood. The diarrhœa continued in spite of all astringents; wine and nourishment were given, but he rapidly sank, and *died* on the twenty-fifth day after admission. A *post-mortem examination* showed the **Post-Mortem Examination.** shoulder joint uninjured. Pus had stripped the muscles of fascia, &c., by burrowing up and down the arm. There was no attempt at union, and a branch of the brachial had been opened into.

The cause of this man's death was twofold—diarrhœa, severe and protracted, and loss of blood direct from the wound, in consequence of a loosening piece of bone opening into a vessel of considerable size.

May 23d.—Private John M'Donald, æt. 25, was wounded in the trenches, on the morning of the 23d. May, while assisting another wounded man. On admission, a jagged wound is seen on the external surface of the **Wound of Thigh.** right thigh, from which there is considerable hæmorrhage. There is only one wound, but on passing the hand round the thigh, a hard projecting point is felt—evidently the ball. The knee is turned outwards, and a very peculiar curve is given to the thigh. On taking hold of the knee and turning it round, having the other hand on the trochanter major, a fracture is at once made evident, as the lower part of the femur moves independently of the upper. Also, on pressing the two together, distinct crepitus is felt.

Treatment.—An incision was made down upon the ball, which was found to have split into two pieces, both of which were removed. The **Extraction of Ball.** fractured ends of the bones were then placed in position, and splints applied. Bowels had not been opened for two days, consequently a purge was administered—tongue clean—pulse quiet. 25th. The bandages were not removed till to-day, when the middle one was loosened, and fresh lint applied. He is still in the same state—doing well. 27th. The leg was to-day put in the double inclined plane, and he expressed himself much easier. *Vespere.* —As he is restless at night, a draught of Mur. Morph. was given. 28th. Wounds look well—expresses himself as easy—pulse quiet.

This case varied from time to time. He complained of pain, caused by the double inclined plane not fitting. Of course it could not be removed and re-applied daily, or no union could be expected to take place; and, from the hot state of the weather, the pad soaked with discharge got putrid and bred maggots. The leg was therefore again put in M'Intyre's long splint, but from the position of the wound, this also was found inconvenient. Two short side splints were found most effectual, as they could be removed and cleaned daily without pain, trouble, or danger.

July 6th.—By this time he is greatly better. The wounds have diminished in size, and the discharge is quite healthy. The bones have evidently so far united; and, except weakness from long confinement and occasional diarrhœa, he is as well as could be expected.

He was soon after transferred to the Castle Hospital, Balaclava.

I have since heard that he died there of some other disease.

The success of this attempt to save the limb was so far complete, as the patient died from another and independent cause; at the same time, it is but right to remark, that up to the time of his death he had been unable to make any use of the leg. Perhaps, too, the long and weakening discharge rendered him more liable to succumb to attacks of disease, which he would have hardly felt when in good health. But I think that even the partial success obtained here, would justify us in attempting conservative surgery in a similar case. For when he died, though not perfectly recovered from the injury, he had safely passed through the greatest dangers, and was in a fair way, eventually, to preserve a sound and useful limb.

Wound of Leg.

May 25th.—Private Henry Bottomley, æt. 24, was wounded by a musket ball in the trenches. On admission, there is a compound comminuted fracture of the left leg. Both tibia and fibula are fractured with comminution at the lower part. The question of primary amputation was raised, and both the surgeon of the regiment and myself agreed in thinking that it ought to be performed, but the principal medical officer of the division considered that the limb might be saved.

Treatment.

The treatment consequently consisted in the removal of loose pieces of bone—the adaptation of the broken ends—the application of cold, with two side splints commanding the ankle-joint and retained by broad tape; the whole being hung on a cradle. 26th. This man was very restless last night, continually throwing off the bed clothes, etc. He complains much of the wooden splints hurting him. They were consequently removed, and gutta percha ones substituted, retained as before by tape. 28th. Discharge still continues very great. He is a most irritable and restless patient. Bowels regular. There is great sloughing of the lower wound, and the whole leg looks irritable. He is very weak and pale—to get beef tea.

Progress.

Shortly after last report, the question of secondary amputation was raised, but conservative surgery was persevered in. He complained much of pain from lying on his back so long, and he was consequently shifted to his side; a gutta percha splint, embracing the foot, being applied, and the whole laid on a pillow. Matter formed and burrowed up and down the leg; maggots also bred in numbers, and were only kept down by repeated injections of Ol. Terebinth, and the use of chloride of soda as a wash. The pus during this time necessitated several incisions; from time to time he got wine. The original wounds have now (July 6th), nearly healed, and there is some union between the bones, but an immense amount of callus has been thrown out, the leg feeling quite hard and large. Matter still **Result.** drains away from several openings, and the introduction of a probe discloses bare bone, but quite firm and surrounded by callus. He was shortly after transferred to the Castle Hospital, Balaclava.

This was a case of compound comminuted fracture of both tibia and fibula, requiring, in my opinion, primary amputation; as well from the extent of the injury as from the known irritability of the patient. The result of conservative surgery here, was most unsatisfactory. At the date (January 30th 1856), when I now transmit this from my short-notes made at the time, eight months after receipt of the injury, he has just left the Castle Hospital for England, little better than when he went there in July 1855.

XXV.—*Cases of Erysipelas and Phlegmasia Dolens.* By JAMES WILSON, M.D., Edinburgh.

Considering that isolated facts in much-vexed medical questions are frequently of great value, I offer no apology for bringing before the profession the three following cases, which appear to me to shew an intimate relation between erysipelas and phlegmasia dolens.

On Saturday, February 10, I was called to attend J. H., æt. 45, residing in Spittal, a fishing village on the south side of the mouth of the Tweed, labouring under common sore throat; on the following Tuesday, an abscess burst in the nose; and on the Thursday erysipelas commenced in the face, extending to the head, which, throughout, was of a severe character, but yielded to treatment by the tincture of the muriate of iron, given in half-drachm doses every two hours. A lotion of infusion of opium and acetate of lead was also employed.

On the 16th I met, at the patient's house, his daughter, then pregnant of her first child, whom, two days after, I was called upon to attend in confinement. The labour was speedily accomplished, indeed, so easily, that the child was born with little warning. The following day, I received notice that the infant, apparently in every respect healthy, had died during the course of the night.

On the evening of the 19th I was summoned to see the woman, whom I found labouring under phlegmasia dolens of both legs. Upon the face and neck there were streaks of an erysipelatous character, but on no other part of the body. The limbs were tense, shining, white, and enormously swollen, with great increase of temperature; and the patient had lost all power over them. The lochia had greatly diminished.

The treatment consisted of saline draughts, tartar emetic, and fomentations.

On the 20th there was no change in the symptoms; and on the morning of the 21st, while proceeding to visit my patient, I received a message that she had died during the night.

There was no *post-mortem* examination.

During this woman's confinement and subsequent illness, her chief nurse was her aunt, living in the same street, whom, eleven days after the death, I was called upon to attend, suffering under intense erysipelas of the face and head. She had been her neice's constant attendant, sitting up with her during the night, and frequently holding up her head in bed, so as to procure change of position.

The treatment was similar to that pursued in the first case, and alike successful.

I may mention, that this patient had never been near J. H. (the first case), and that no other cases of erysipelas were known in the village.

Berwick-upon-Tweed,
April 12, 1856.

XXVI.—*Singular Case of Apparent Intra-Uterine Disease.* By Thomas Williamson, M.D., Physician to Leith Hospital, Gladstone Institution, etc., etc.

Any new fact bearing upon intra-uterine pathology must ever be worthy of record; and all the more, should features be therewith connected, having the slightest reference to infanticide, and consequent medico-legal investigation. As the following case, in this respect, possesses some degree of interest, I am anxious thus to give it publicity.

History.

On the 15th April, I was requested to visit a poor woman, who had made application for parochial relief, in consequence of having been recently delivered. I found the patient, apparently about 29 years of age, and the occupant, as lodger, of a miserable "shake down," in the corner of a small apartment; her infant lay dead by her side, on a small table, and was placed in a coffin. The landlady, in reply to my interrogations, stated, that although she was perfectly aware of the woman being pregnant, yet she had no idea that she was so near the period of her confinement, otherwise she would have adopted means to secure her admission to the "Maternity." That the night previous to my visit (about 9 P.M. of 14th instant) she was more than astonished to discover unmistakeable signs of her lodger having given birth to an infant, and all the more so, as she had only a few minutes previously been in the open square drawing water from the well; that it was the woman's first birth, and impossible to tell the father of the child. She further added, that the assistance of some neighbour was obtained, who acted in the capacity of midwife, and that the infant survived birth about twenty-five minutes.

Appearance of Child.

Upon examination of the external body of the infant, which was evidently premature (probably about the eighth month), the placental cord was found cut, and properly secured by means of a tape ligature. There was considerable congestion along both sides of the spine in particular, and generally more or less over the entire posterior aspect of the body. The palms of both hands, and the soles of each foot, were completely deprived of their cuticular covering; the cutis vera, appearing highly congested, and more especially that of one of the hands, exhibiting the appearance of small eschars on its surface, about equal in size to a split pea. The forehead was studded, here and there, with minute dark coloured vesications; whilst the anterior half of the nose, inclusive of its alæ, and slightly encroaching on the cheek, presented, at first sight, all the appearance of having been subjected to the process of roasting, being perfectly dry, of a dark brown colour, and of shrivelled and corrugated aspect. The tips of both ears presented a somewhat similar character.

Now, this was rather a perplexing case to deal with; the authorities knew of its occurrence, and although I merely *incidentally* came into possession of these particulars, regarding the infant, it was nevertheless clearly my duty to form some sort of opinion in regard to the cause of death. With this object in view, I associated myself with my friend, Dr Paterson (Police Surgeon), and together inspected the external body. Although, doubtless, the appearances, in one sense, were somewhat suspicious, yet the incongruities on the other hand, were equally strong. Care had evidently been bestowed on the infant, with the view of preserving life, by the tying of the cord; and there was not wanting, in this instance,—as in similar others,—a small host of females, who, on receipt of intelligence of the affair, had flocked to the scene of action, so that any thing like foul play, in this case, could scarcely, by possibility, have been concealed, even supposing it had been perpetrated. Again, the *peculiar symmetrical character* of the affected parts—palms of hands, soles of feet, tips of ears and nose—could never have been occasioned by placing the infant either in hot water or on live coal. It could only have been effected by subjecting these parts, *each in their turn*, to the action of a fiery agent—a supposition too absurd, for a moment to entertain.

On the other hand, the mother of the child, was evidently of abandoned character, and according to her own admission, had contracted syphilis some short time previous to conception. Besides, the hard, dry, and crustaceous characteristic of the lesions in question, bore unequivocal resemblance to what we every day behold, as somewhat pathognomonic of this peculiar virus. And, therefore, although neither of us had ever heard of, or seen an exactly similar case, we were (after weighing all circumstances) induced to depart from the idea that any violence had been resorted to, and inclined rather to ascribe the appearances to a syphilitic taint of constitution on the part of the mother.

XXVII.—*Case of Induction of Premature Labour.* By James Grey Glover, M.D., Edinburgh. South Shields.

History.

Mrs H., æt. 33, had five children previously to her late pregnancy. She had never more than one at a time, and never miscarried. The first, a boy, was born alive nine years ago, after an apparently natural labour, certainly no instruments were used, and he is still living. The next four were all born dead, the labours being preternatural, or difficult in the sense of Dr Denman's classification. This seemed owing to some slight contraction of the pelvis, not, however, very appreciable by the finger; and also in part to the larger size of the head, very marked in her first child, and more or less in the subsequent ones.

This hard fate of four successive children, led her to submit to the induction of premature labour, but not till the eighth month of her late pregnancy.

Injection commenced.

Mr Williamson, her regular medical attendant and I both agreed that the simplest and probably best method, was that of Kiwisch. Accordingly we commenced it on *Monday, January* 21, 12.30 P.M., by injecting several pints of warm water into the vagina with Higginson's syringe, directing the end of the tube as nearly as we could into the os uteri. When this seemed to be accomplished (the os was high up and out of easy reach) the injected water was retained for some minutes, and returned in quantity stained with blood. Several clots followed in the course of the afternoon and evening.

The vaginal injections were repeated in the evening. An enema of castor oil brought away large quantities of fœcal matter.

Sponge tent.

Result.

Tuesday, January 22, 10 A.M.—No coloured discharge in the night. No appreciable dilatation of the os, vaginal injections repeated, a great part retained for some minutes. A slight discharge very like "shows" followed. At 6.30 P.M. Mr W. thought there was some dilatation, and that he could feel the membranes. After injecting several pints, I suggested the introduction of a sponge tent, which Mr Williamson accomplished with some difficulty, owing to the position of the os uteri, but yet very satisfactorily after a while. At 10.30 P.M. she began to have pains. Wednesday at 5 A.M. pains frequent. At 9 A.M. os size of two shilling piece. At 10.30 A.M. waters escaped. At 1.30 our patient was delivered of a fine male child. Forty-nine hours after the first injection of water, nineteen hours after the introduction of the sponge tent. The first labour pains were felt thirty-four hours after first injection of water, four hours after introduction of the sponge tent.

The sponge tent used was the one recommended by Dr Simpson. The quantity of water injected varied from a pint and a half to three pints. I may say, that our eighth month patient is thriving well, contrary to the usual prejudice.

This case does not determine the respective value of the two methods of Kiwisch and Klugè, but probably both the injection of water and the sponge tent contributed materially to the successful result, the one by detaching the membranes, the other by dilating the os uteri. At all events, it may serve to show the propriety of a combination of methods where the first is slow, or doubtful in its results.

Part Second.

REVIEWS.

Gesammelte Abhandlungen zur Wissenschaftlichen Medicin, von Rudolf Virchow; Professor an der Universität zu Wurzburg.

The Collected Treatises on Scientific Medicine of Rudolph Virchow, Professor in the University of Wurzburg.

It is one of the peculiar and characteristic features of the age in which we live, that the great bulk of the talent of authorship is cast into the broad and powerful stream of periodical literature. The author no longer, as in days gone by, sits down slowly collecting his materials, until he has accumulated sufficient to fill a goodly sized octavo or quarto volume; but he sits down and dashes off his thoughts, fresh and warm from the mint of his mind, and gives them to the public in the pages of some of the monthly or quarterly periodicals; so that oftentimes we find papers appearing anonymously in these magazines, the standard excellence of which, fifty years ago, would have established an author's reputation for life. But their authorship is modestly concealed, and remains unknown, it may be for years, save to a favoured few; and it is only after the articles have long stood the trying ordeal of public criticism, that the veil of the incognito is dropped, or that the author proclaims himself, and accepts the praise which is his due. He then begins (what is perhaps the most delightful task in literature), the work of revising, and rewriting his works, with a view to their publication, in a collected form :—pruning away the excrescences of juvenility—rejecting all that is obsolete or worthless, and improving those portions which appear capable of amendment. Happy is he whom the public voice summons to this pleasant task! In literature, we find, in these days, this honour paid to a Dickens, a Thackeray, a De Quincey, and a Macaulay; and it is satisfactory to see them engaged in gathering together, and editing the publication of the various tales and essays on which their reputation has been founded. And in science, too, it is right pleasant to see its veterans thus engaged, for, if they discharge their duties aright, in editing their works, great are the benefits which accrue to us. All those theories should be rejected (or given now with a reservation) which they had propounded in the fulness of their faith, years ago, but which further research and longer experience have now shown to be fallacious, while all genuine truths, stated at first timidly, but now confirmed by repeated trials, should be given to the world, with the weight and influence of this additional testimony. And if thus, in a candid and impartial spirit, and with a sincere love of truth rather than a desire for empty self-laudation, the scientific man, in fulness of time, collects the scattered fragments of his workmanship, and blends them into one harmonious whole, he confers a great benefit upon society at large. Specially true is this of medical science, which is so uncertain and mysterious in many points, and which, as it progresses, is constantly changing its aspects. When its pioneers map out for us the paths which they have trod, it is but fair and wise that they should point out to us wherein they have erred, and what steps their matured judgments would have *us* to follow.

In the present day, two of the most important republications in medical science are those of Simpson in this country, and of Virchow in Germany. In the cases of both of these physicians, it may, with great reason be objected, that a republication of their works, in a collected form, at present, is very premature; for the authors are not advanced in years, but men in the prime of life, from whom much more is expected; and, moreover, the doctrines which they enunciate have not yet stood sufficiently long the test of public approval and scientific investigation. But, nevertheless, we welcome both these works most gladly, and fervently trust that their authors may be spared for many years to give us the benefit of their ripening wisdom and growing experience.

Before us lies a very handsome volume (*wonderfully* well got up for Germany, the medical works of which country are too often ill printed, on miserable paper), which constitutes the first part of Professor Virchow's collected works. Those members of the profession, in this country, who have kept up with the advance of medical science, are nearly all familiar with the name, and with many of the writings, of this distinguished pathologist. The present republication of his many valuable monographs, in a collected form, is a very acceptable contribution to the standard medical literature of Europe.

The volume commences with several thoroughly German papers, of a psychological character; on such subjects as "Man," "Life," "Disease," etc.; but as these contain nothing but old facts, stated in a striking manner, and lack the originality of most of his other writings, we shall not attempt any analysis of them. After them follow all his monographs on Fibrin, the nature of which, as our readers will remember, was, a few years ago, a *questio vexata* among pathologists. The first of these is upon the appearance of coagulated fibrin, which Virchow, in the year 1845, pronounced to be that of a homogeneous gelatinous substance, occurring in membranous-like fragments, which, by the formation of plaits and wrinkles, assumed a fibrous aspect. He now makes the farther remark, that in the course of all his subsequent investigations, he has never seen any form of coagulated fibrin which could be regarded as of granular appearance. He says that fibrin, like mucus, in coagulating, alters the appearance of such structures as may be embedded in it (as, for instance, blood globules or pus corpuscles, etc.), causing cells which were originally round, to become oval, stellate, spindle-shaped, etc. This is well seen by previously immersing the coagulum which we examine, in acetic acid, which renders it soft, homogenous and transparent. The stellate bodies often seen in it, when thus examined, are, in his opinion, changed colourless blood globules. He then gives an interesting *resumé* of all that is known of the physical peculiarities and chemical characteristics of this substance. He shows that the firmness of blood-coagula depends, in general, not on any chemical or physical change of the fibrin, but on its amount in relation to the amount and concentration of the fluid, and the quantity of its solid constituents. The less the amount of solids in the fluid, the firmer becomes the fibrous portion of the clot; the fewer the blood globules, the smaller and firmer the coagulum. His remarks on the softening of fibrin contain nothing new, and are merely a commentary on, and elucidation of, the observations of our distinguished countryman, Gulliver. He weighs all the evidence, at great length, on the question of the origin of fibrin, and the cause of its coagulation in animal fluids. And, he is of opinion that, in no animal fluid, does perfect fibrin pre-exist *as such*, but that in the blood, the lymph, and the lymphatic fluids, there are contained materials more or less allied to it in their character, which, by the contact of acids, become sooner or later transformed into true fibrin, and then coagulate. This fibrin-producing material, he believes to be a product resulting from the metamorphosis of tissue, especially of those structures which are connected with the lymphatic system, the spleen, lymphatic glands, etc. This product, sooner or later, coming into contact with acids or acid fluids, becomes converted into the true fibrin, which coagulates in exudations, among the tissues or in the lymph or blood-vessels. This, however, is a morbid process, occurring only in disease; for, in health, the fibrinogenous material undergoes a fresh metamorphosis, and is thus destroyed.

Professor Virchow next presents us with his memoirs on the colourless blood corpuscles, and the condition which he has termed Leukæmia (*Leucocythemia* of Professor Bennett). His views on this subject are too well known to require any further elucidation from us, at present; and as to the question of the priority of the discovery of Leucocythemia, we are still convinced that it was first observed in Edinburgh, rather than in Germany. For an analysis of all the evidence on this subject, we would refer the reader to Dr Bennett's reply to Professor Kölliker, published in the *Monthly Journal of Medical Science* for October 1854.

The volume concludes with his most deeply interesting monograph on plugging of the pulmonary and other arteries by intercepted blood-clots. Our space being exhausted, we cannot venture to detail its contents, but would refer all our pathological friends to the original paper, as one well worthy of their careful study.

Sanatory Remarks in connection with Nuisances; Addressed to Students and Young Physicians. By Thomas Williamson, M.D., L.R.C.S.E., etc., etc., Leith.

The recent efforts that have been made by the Board of Health, to carry out a rational and efficient system of sanatory reform, and the stubborn resistance with which, in some instances, these have been met, and more especially in London, by the parochial authorities and corporations, must go far to convince us that, if we are ever to have a complete and practical system of sanatory regulations, we must look for it, not to the people themselves, nor to local boards, but to government or its representatives, armed with an absolute power, which can be brought to bear, readily and efficiently, on any town or parish whose sanatory condition may be deemed unsatisfactory by competent and disinterested persons appointed for the purpose.

The very partial manner in which parochial boards in Scotland have availed themselves of the permissive powers, conferred by various acts of Parliament, to tax the inhabitants for sanatory improvements, proves that committees cannot alone be intrusted with the duty of keeping their towns clean and free from nuisances. Some of them appear quite indifferent on the subject—they have become accustomed to dirty streets, open sewers, and smoky chimneys, and therefore can see little harm in them. In most towns, however, we believe that it is neither indifference, nor the want of sufficient information on the subject, that prevents sanatory progress; for, in no third, or even fourth-rate, town in Scotland, is there wanting a sufficient number of enlightened individuals who are both willing and able to point out what ought to be done, and how to do it. But they want the necessary powers, they have not the money,—and there is the root of the evil. They must come to the Parochial or Police Board for the means; the board represents the inhabitants, and both board and inhabitants are sufficiently sensitive to any proposal to raise money, which they themselves have to provide. Their property is already heavily taxed; they take time to think over the matter; their ardour for sanatory improvement cools; the persons who first stirred in the matter begin to be regarded as enthusiasts, who have got absurd notions into their heads, and who, for ought that is known, would, if they got their way, turn the town upside down, and mortgage half the house property in the district. The issue, too, often is, that things are left as they are.

The remedy for such a state of matters is, the introduction into Scotland of a system similar to that which is in operation in London. We would have the Board of Health as the supreme power; under it one or more inspectors for Scotland; and, lastly, in each parish or district, a medical officer of public health, upon whom the principal duties would devolve. His duties would be to survey his district at regular intervals, to inquire into its sanatory condition, to inspect all supposed nuisances, and to suggest improvements. He should then make a report to the Parochial Board on these matters; suggesting any improvements, or the suppression of any nuisance that he may deem necessary. Should this not be attended to by the parish within a reasonable time, he should report the neglect to the inspector, who would then visit and inspect the district along with him. The inspector having satisfied himself as to what was necessary, would then demand of the Parochial Board whether they were willing to carry out his recommendation. If they refused, then he must report to the Board of Health, who would, if they thought fit, issue an order, from which there could be no appeal, compelling the parish to complete the improvements, etc., and, if need be, to impose a rate sufficient for the purpose. The inspector, being a government official, would be subject to the General Board of Health. The medical officer of health should, as in London, be elected by the parish, but once elected, should be subject to removal only on incapacity or immoral conduct being proved against him.

We do not intend our remarks on the indifference of local boards to sanatory reform, to apply to every town in Scotland. Our cities, and some of the larger towns, are examples to the contrary.

Edinburgh, in particular, has always availed itself of the permissive powers, contained in various Acts of Parliament, to remove nuisances, to widen, pave, and drain the streets and closes, and to maintain them in a state of cleanliness. But, as a contrast to this, we may refer to the neighbouring town of Leith, which, although it has the same means of improvement within its reach, still continues, with the exception of the more public thoroughfares, one of the dirtiest and worst drained towns in the country; while, from the numerous chimneys of soap-works, chemical-works, bone-mills, glass-works, etc., etc., dense volumes of smoke (visible for miles around, and often of the most nauseating and unhealthy character), are poured forth day and night unchecked—injuring the health of the community, and deteriorating the value of the property in the neighbourhood. From personal knowledge, we can assert, that there is no reason whatever, why Leith should not be as clean and as healthy a town as any of its size in Scotland, nor any reason—save the supineness of the local authorities—why the owner of every public work should not be immediately compelled to consume his own smoke, as is done in various parts of the country.

Such being the sanatory requirements of Leith, from no quarter could a pamphlet on sanatory reform have more appropriately come. Dr Williamson has addressed his pamphlet to students and young physicians, but it can be read with equal benefit by others, and we would recommend it especially to the members of local boards, whose duty it is to look after the public health.

After some general remarks on the necessity of sanatory regulations for preserving the health of the community, and preventing or mitigating the ravages of disease, Dr Williamson proceeds to point out what he considers the requisites for securing these ends, and he justly ranks as first in importance, an efficient system of sewerage and drainage. "To preserve health, every street should have a common sewer, and every house, or land of houses, a drain; and yet we knew, from painful experience, that almost the opposite of this desirable state of matters holds true. In the most densely populated parts of any considerable town, the observer is at once struck with the number of surface drains, running like fated rivulets, and traversing large tracts of space, before they empty themselves, by means of cess-pools, into some distant sewer, which, from faulty construction and bad levels, often becomes choked up, forming, in fact, a prolonged cess-pool, the malaria from which find a ready exit through every gully-hole, so poisoning and corrupting the atmosphere. No wonder that, under such circumstances, we should have fever, the marvel only is, that we should ever want it. From a long and extensive professional experience of Leith, I can unhesitatingly endorse the following remarks of Dr Southwood Smith—'If you trace down the fever districts on a map, and then compare that map with the map of the Commissioners of Sewers, you will find that, wherever the Commissioners have not been, there fever is prevalent, and, on the contrary, wherever they have not been, there fever is comparatively absent.' Until, therefore, something is done to compel the construction of sewers and house drains throughout every town and city in the kingdom, we will look in vain for a sensible reduction of disease, and a corresponding healthy community."

The author then alludes to the various sources of disease in towns, and gives illustrations of these, derived from his experience of several epidemics of fever and cholera, with which the town and neighbourhood have been visited. The remedies for these he points out in a judicious and practical manner; and, among other things, shows, that the best interests of the landlord, even in a pecuniary point of view, would ultimately be found to coincide with the establishment of a thorough system of sanatory regulations. Among the many subjects that come within the scope of this pamphlet, Dr Williamson has not omitted to notice, as a possible source of disease, the irrigated meadows situated between Leith and Portobello. We have long regarded these meadows as a nuisance that ought to be suppressed. They present a large extent of surface, over which the sewage water from the Old Town of Edinburgh is regularly spread, becoming partly absorbed, and greatly evaporated. They yield four or five crops of grass in summer, the greater part of which is brought into town to feed milch cows; but, from the stench of sewage water emitted from the loaded carts as they have passed us on their way into town, we often wondered how these animals can be got to eat it. While we denounce these meadows as a public nuisance, we can, at the same time, recommend them to our scientific friends who may be bent on microscopical research, as presenting the best batrachial hunting grounds and infusorial preserves in the neighbourhood. One fact stated in the pamphlet before us, and of which we were not previously aware, seems to prove that these meadows are injurious to life, viz., that the mortality among the troops at Piershill Barracks (which are close to the meadows), is greater by 2 in 1000 than among the *same* and similar troops throughout the country.

Trees and their Nature; or, the Bud and its Attributes. By ALEXANDER HARVEY, M.D. London, 1856.

DR HARVEY holds that tree-life exists in the "bud;" that living plants are evolved from *buds*, and grow as parasites on the organic remains of the dead plants; that the trunks on which we have looked so long with veneration are little better than clock cases, merely concealing the sap vessels that convey nutriment to the buds, and serving externally as a mechanical support and temporary soil to cover evolving buds. Dr Harvey does not claim originality for his theory, although he appears to have reached it by an independent process of investigation; but he certainly is entitled to the merit of patient and systematic inquiry, of clear and distinct explanation, and of an entire absence of the dogmatism which usually characterises departures from the beaten track. Whether Dr Harvey's theory convinces the reader or not, we can recommend his work as a pleasant and instructive little volume.

Part Third.

PERISCOPE.

MEDICINE.

ON THE COMMUNICABILITY OF CHOLERA BY DEJECTIONS. LETTER FROM DR ALISON.

EDINBURGH, *May* 14, 1856.

DEAR SIR,—In looking over the subjoined extracts, all from authorities on whom we can place perfect reliance,—both as to accuracy of observation of the facts, and intelligence in regard to the difficulties attending the inferences from those facts,—I do hope and believe, that the period at which there will be agreement in the profession generally, as to those inferences and their practical results, is not so distant as Dr Budd apprehends. Indeed, when I remember that the practical conclusion which was drawn *here* (as far back as 1832), as to the double origin of cholera, in the seasons when it becomes epidemic,—*both* an *apparently* sporadic origin at various points, and *also* in the way of communication from person to person, by which districts, at first small, become tainted,—and the obvious inference, from the last observation, as to the importance of houses of refuge, for the *families* of the individuals first affected in any district,—is exactly the same as is now expressed, nearly *totidem verbis*, as these extracts show, by those who have studied the subject carefully, and are qualified to judge of it, in London, Dublin, Oxford, and Philadelphia, as well as Bristol, Sunderland, and many smaller towns,—I apprehend it will be difficult for any medical man, hereafter, to give an opinion to the authorities of any district, threatened with cholera, in opposition to it. How far the facts, which are now on record, as to the *absence* of any contagious property in the *bodies* of those who have died of cholera, afterwards decomposing in the usual way, and the *presence of that property* in the *rice-water evacuations*,—at certain stages and in certain modes, perhaps not yet ascertained, of their decomposition,—may suffice for the explanation of the strange differences observed in regard to the extension of the disease (of course taken in connection with the known tendency of all epidemics, after a time, to abate of their malignity),—I do not presume to judge; but the principles here stated are, I think *certain*; and, if so, *sufficient for guiding practice* as to the means of prevention,—I am, dear sir, faithfully yours,

W. P. ALISON.

To the Editor of the
Edinburgh Medical Journal.

EXTRACT OF A LETTER FROM DR BUDD OF BRISTOL TO DR ALISON.[1]

BRISTOL, Dec. 15, 1855.

MY DEAR SIR,—As to the facts in my papers on cholera, I have spared no pains to ensure their authenticity. Those which belong to the workhouse, were verified by reference to the mortuary and other registers of the place, and every other available source of information. The details relating to the mine were furnished to me by the owner of the pit and the pit-bailiff, and were checked by a reference to the "wages-book," which furnished, in the last payment made to each man, the date of his seizure with the disorder. Other particulars I learnt from the surgeon who attended the greater number of the cases. Many similar instances of the spread of cholera in mines, have, I believe, been observed, and I hope the details of some of them may yet be brought to light. In the Appendix to the *London College of Physicians' Report on Cholera*, is an account of the origin of the disease in Sunderland in 1848-49, by Dr J. Brown, which appears to have been, in many respects, a strictly parallel case (*Vide* infra, p. 4). My friend Mr Coe, one of the surgeons to the General Hospital in this town, who had the medical charge of the Plymouth Iron Works, near Merthyr, during the *frightful epidemic of cholera* which occurred there in 1849, tells me, that *the propagation of cholera in the pits by the evacuations* of men already infected, became so evident as the disease progressed, as to force itself on his conviction in the most irresistible manner.

Decisive as the body of evidence now on record appears to be in favour of the conclusion that cholera is communicated by the rice-water discharges, I fear it will be a long time yet before this conclusion, and all its momentous practical consequences, will be adopted by the profession generally. That it will ultimately prevail universally, I have no doubt; and I even go so far as to believe, that the time will come when this truth will be held to be so obvious, that, to say that cholera is contagious, and to say that it is propagated by the discharges from the sick, will seem like uttering identical propositions. Meanwhile, the clear duty of those who believe cholera to be propagated by the rice-water discharges, is to lose no opportunity of urging the adoption of the measures which this belief suggests. Whether this mode of propagation be considered to be absolutely proved or not, the facts in favour of it now on record, are so strong, as to impose on all who neglect such measures, an amount of responsibility which it is difficult to suppose any conscientious man can knowingly accept.—With all good wishes, I remain, yours very sincerely,

W. BUDD.

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[1] (Sent to the Editor of the *Journal*, with the extracts inclosed from the London and Dublin Reports, in December last; but their admission prevented by the number of "Original Communications," until now.)

EXTRACTS FROM THIRD ANNUAL REPORT OF IRISH MEDICAL CHARITIES COMMISSIONERS AS TO THE EXTENSION OF CHOLERA, 1855.

With respect to the enforcement of measures of sanitary improvement, we had addressed a circular, so far back as October 1852, to the boards of guardians, for the purpose of impressing upon them the importance of attention to this subject. The danger, however, was then remote, and comparatively little was effected in the way of sanitary improvement, till the autumn of the following year, when the salutary alarm occasioned by the violent outbreak of cholera at Newcastle-on-Tyne, caused the same circular, which we re-issued on the 15th of September 1853, to be received in a very different spirit; and we have the satisfaction of being able to say, that from that time till now, the boards of guardians and sanitary committees have, with few exceptions, exhibited an earnest desire to act with energy for the removal or abatement of nuisances in their respective districts. The Town Councils have generally undertaken this duty in the corporate towns and cities of Ireland, and with the aid of the constabulary, and acting under the authority derived from the Order in Council, and the provisions of the Nuisances Removal and Diseases Prevention Acts, have exercised great activity in the discharge of this important duty. We can confidently assert, that within this period, an amount of sanitary improvement has been effected in this country, nothing remotely approaching to which has been ever, on any previous occasion, reached in a similar period.

In our last Report, dated 6th February 1854, we stated, that up to that date, cholera had appeared in an epidemic form in the Cork Union only. It had been introduced into Belfast and Cork, on the 5th and 7th of November 1853, by two emigrant vessels, the *Guiding Star* and the *Kossuth*, on board of which the disease had broken out with violence. In Belfast, the patients from the *Guiding Star*, twenty-six in number, and such of their friends as were permitted to land, were kept in a separate part of the fever hospital of the workhouse, till all appearance of cholera was gone. *No spread of the disease* took place in the workhouse or town of Belfast. At Cork, the passengers on board the *Kossuth*, except those actually labouring under cholera, were allowed to land at Queenstown and Cork; and soon after, *the disease declared itself in both towns.* A small number of scattered cases of cholera were reported from a few other places, in the end of 1853 and the beginning of 1854, the last case occurring on the 22d January 1854; and then it became for a short time extinct in Ireland.

The revival of cholera commenced by an apparently spontaneous outbreak, on the 2d of February 1854, at Limerick, and the disease has since declared itself in a large number of distinct localities. In a small number of these places (Limerick, Belfast, and Dublin), the disease seemed to spread from them, as centres, to a considerable extent around.

In each of the cases where the spread of the disease was extensive, two remarkable facts were to be observed. In none of them was the spread uniform from centre to circumference. On the contrary, the disease showed a manifest predilection for some particular directions. Thus, at Limerick, it spread principally to the south, south-east, and south-west; at Belfast, principally to the north-west, east, and south-west; and at Dublin, principally to the south, west, and north-west. Secondly, in no case was the spread of the disease in any direction uniform in its advance, like a tide. Numerous instances occurred in which a certain district around any of the centres being occupied by the epidemic, its next advance took place, by a leap, to a town, village, or farm-house, many miles distant from the circumference of such district; less remote localities becoming involved in its spread some days or weeks subsequently. These facts were so marked and constant, that no theory to account for the propagation of the disease can be sound which does not harmonize with them.

We are happy to be able to state, that the present visitation of Asiatic Cholera in Ireland, compared with the previous epidemics, has been so far, upon the whole, *remarkably mild.* The disease has spread over a considerable extent of the country, and has been in existence for nearly fifteen months; yet the total mortality does not probably exceed that of London, for the fortnight ended 16th September 1854, when the mortality from cholera in the late outbreak of the disease in the metropolis attained its maximum, and in which period, according to the Registrar-General's Returns, the number of deaths from cholera, in London, was 3599. We will not undertake to conjecture how much of this result may be attributable to diminished intensity in the still occult causes essential to the existence of the disease; but we cannot doubt that much may justly be attributed to the promptitude with which it was met, through the dispensary organization which it was in our power to apply to its treatment, and to the very large amount of sanitary improvement which has been effected through the country, between the time when the near approach of cholera alarmed the board of guardians, and the present moment.

Availing ourselves of the existing organization of the dispensaries, we constituted, by the issue of the Cholera Order to any Union, any dispensary district in it in which the disease actually existed, a district for the treatment of cholera and its premonitory symptoms; the committee of management of such district, a sanitary committee, whose duty it should be to aid the board of guardians in the execution of the directions and regulations, and in the energetic enforcement of sanitary measures within their district; and the medical officer of the dispensary, the medical officer for the treatment of cholera and diarrhœa, on application by any person, without the presentation of a ticket or recommendation of any kind.

In this manner, sufficient provision was made for the treatment of patients in the commencement of the epidemic, and while the cases were still few; and the provisions, which had been recently rendered available by the Order in Council, of the Nuisances Removal and Diseases Prevention Acts, together with the directions and regulations, gave ample powers to the boards of guardians to provide hospital accommodation, wherever necessary, and to make additional medical appointments, in proportion with the spread and increasing severity of the epidemic.

Thus was provided, in every district in which cholera had become epidemic, the easy means of procuring prompt medical treatment, by any person suffering under cholera or its premonitory symptoms, and who was willing to avail himself of those means. We have, likewise, willingly sanctioned the adoption of house-to-house visitation where it was proposed by the boards of guardians, and, in some instances, have pressed it upon them, where they were indisposed to adopt it themselves.

When cholera made its appearance in any of the workhouses, a course of action was suggested by us, which was attended, as we believe, with great success. A ward was set apart on each side of the house for the reception and treatment of cases of diarrhœa; a vigilant watch was kept up, to ascertain the existence of the earliest symptoms of a suspicious nature, and, immediately on their occurrence, the patient was sent to the appropriated ward, at once placed in bed, warmly covered up, and submitted to the proper treatment.

From the experience obtained in the North and South Dublin and other workhouses, it would appear that prompt treatment of diarrhœa, in the manner above described,—that is to say, in a diarrhœa ward, as distinguished from a cholera ward,—affords the best security for the suppression of cholera, on its outbreak in any public institution.

Under these arrangements, we have found that the treatment of cholera, in the present visitation, has been hitherto conducted in a satisfactory manner; and that, except in two or three instances, where the disease burst with extraordinary suddenness and extreme mortality in a single house, or locality of narrow bounds, nothing like panic has been produced.

In the spread of cholera in the present epidemic in Ireland, we have observed among the first instances of the disease in new localities, three classes of cases:—

1. To the first belong cases of the following description. The inhabitant of a

locality where there has previously been no evidence whatever of the existence of epidemic influence, in the prevalence of diarrhœa or other premonitory symptom of cholera (who has not been absent from his home for a length of time, and who, so far as can be ascertained, has not been in contact with any person who might be suspected of having conveyed infection), is suddenly struck down by unmistakeable Asiatic Cholera. Cases of this class exclude the idea of contagion, so far as the information extends.

2. To the second class belong cases where persons, who have resided for a greater or less length of time in a place where cholera at the time prevailed, proceed to a locality as yet unaffected, in apparent health; and within a few days of the date of departure from the former residence, fall ill of cholera, which, on the death or recovery of the patient, becomes extinct in the new locality. Such cases cannot be altogether free from suspicion of having had their origin in contagion; but their existence is perfectly compatible with an entire absence in the disease of a power to propagate itself by contagion. The case may be precisely similar, in this respect, to one of no uncommon occurrence in Ireland, in which a labourer, the inhabitant of a district in this country where ague is unknown, goes, in spring, to seek employment in England, spends some weeks among the fens of Lincolnshire, and, after the malarious poison has taken hold of him, returns to his home, where, perhaps several months after his return, he falls ill of ague. The fever, however, never spreads among the attendants or neighbours of the patient, and hence is not suspected of being communicable by contagion.

3. The third class includes cases in which persons recently arrived in a locality, perfectly free up to that time from all evidence of the existence of the epidemic influence, from a place in which cholera was then prevalent, take cholera; and, immediately after, the attendants, persons in the same house, or neighbours who frequented this house during the course of the disease, are themselves seized by cholera. The spread of the disease consequent upon the occurrence of cases of this kind, is explicable only on the supposition, either that cholera is occasionally propagated by contagion; or, secondly, that the imported case gave birth, in some way, to the epidemic influence in the new locality; or, lastly, that that influence became active, quite independently of the imported case, and that the approximation in time between the commencement of the activity of the influence and the occurrence of the case was a purely accidental coincidence.

The following account of the outbreak of cholera in the present epidemic in Finglas, about a mile and a-half north-west of Dublin; in Kingstown, about eight miles south-east of Dublin; and in Kill-of-the-Grange, about a mile south-west from Kingstown, presents three well-authenticated instances of the third class of cases.

One of the fugitives, Mary Johnson, left Finglas late on the night of September 16th, and arrived at the house of her brother-in-law, Peter Byrne, in Kill-of-the Grange, a very small village, eight or nine miles in a south-westerly direction from Dublin, at one o'clock A.M., of the 17th. At this time there was not an ascertained case of cholera in Dublin, or its vicinity, except at Finglas. On the next day, Mary Johnson fell ill of cholera, and died, after thirty-two hours' illness. In the same house, Peter Byrne, nephew of Mary Johnson, and about 6 years of age, took the disease on 20th September, and died in twenty-five hours. Immediately the epidemic spread with virulence through the village. In the house immediately adjoining Byrne's, resided the family of a man named Moore, seven in number. Between the 23d and 28th of September, this entire family was swept off. Peter Byrne, in whose house Mary Johnson had taken and had died of cholera, alarmed by her death and his child's, would not return to the house after the interment of the latter, but took refuge in a lodging-house, kept by a person named Cowell, at Kingstown, where, as yet, no case of Asiatic Cholera had appeared. About thirty-six hours after his arrival at Cowell's house, this man was seized with all the symptoms of malignant cholera, and died, after about ten hours' illness. Two days after, the first indigenous case in Kingstown occurred. Francis Cowell, aged 8 years, son of the lodging-house keeper, and residing in the house where Byrne died, took cholera, and died, after about thirteen hours' illness; and, on the fourth day after, a sister of the last patient was affected with symptoms of cholera, from which, however, she recovered. The disease in a short time after became epidemic in Kingstown. There will be found recorded in the Appendix upwards of twenty other distinct and well-authenticated cases, similar to those just mentioned as having occurred at Finglas, Kill-of-the-Grange, and Kingstown, and giving the same evidence of the contagious nature of Asiatic Cholera. In no case have we been able to detect a link of connection (of the cholera in Dublin) with an inhabitant of Finglas. Still the broad fact remains, that after the disease had broken out with violence in a village near Dublin, on the north, and had been conveyed across it by traced cases to two villages (Clondalkin and Kill-of-the-Grange), on the south, and that, with a high degree of probability, fugitives from the infected locality had taken shelter in it,—the epidemic forthwith declared itself in the city.

The observations we have collected tend to establish the following conclusions:—

1. When the unknown influence on which epidemic cholera depends, has reached any country, cases of apparently spontaneous origin,—that is, cases which cannot be traced to connection with any other case,—are of frequent occurrence.

2. Cholera occasionally *spreads by communication* from individual to individual.

3. The force of the contagious property of cholera, as compared with typhus fever, scarlatina, and other diseases which possess this property in a high degree, is feeble, and may be certainly mitigated or counteracted by the adoption of sanitary measures.

4. *Both modes of origin*, and the spread of the disease when it has arisen, are favoured by all causes which lower the vital powers, and in an especial manner by those that poison the atmosphere habitually breathed, such as crowding of habitations, neglect of ventilation, and the contamination of the air breathed, by the deleterious emanations from animal and vegetable substances in a state of decomposition, etc.

In general, the disease, as it has presented itself here in the existing epidemic, has faithfully retained nearly all the distinguishing characters which have marked it in the other countries of Europe. We have been struck by two exceptions to this general assertion; one relating to the predilection which it has been supposed to exhibit, in its spread, for the banks of rivers, often confining itself in its progress, in a great measure, to these and their immediate neighbourhood. It is notorious that it has shown such an apparent predilection in its propagation along the course of the Ganges and Jumna, the Euphrates and Tigris, the Volga and Don, and the St Lawrence and Mississippi. But the spread of cholera in Ireland, on the present occasion, has been such, as to be distinctly contradictory to the supposition of such a predilection. The disease has prevailed with some severity in several large towns situated at the mouths of rivers, but it has not, in any one instance, chosen the course of the river in its spread. At Londonderry it has not run up the Foyle; at Belfast it did not follow the course of the Lagan; nor at Dublin and Cork that of the Liffey or the Lee.

The second exceptional fact, to which we have alluded above, relates to the facilities supposed to be presented for the propagation of cholera by seas. We had an opportunity of testing this opinion by an observation on a small scale, when cholera appeared on the banks of Lough Neagh, at Antrim, on the 23d of April 1854. This small inland sea certainly presented no facility for the propagation of cholera. The disease did not run round the low banks of the lake from Antrim; no cases were reported as having occurred in any of the many villages or farm-houses close to the borders of the Lough. It did not appear at Randalstown, near the lake, a few miles from Antrim, till August 19th, nor at

Lurgan, near its southern extremity, till August 24th.—*Third Annual Report, etc.*, p. 15–27.

The difference between this disease and typhus (in origin) would appear to be, that while the latter may almost *invariably* be produced by the persistence of certain unfavourable sanitary conditions, the former, cholera, is generated *only in the presence of a certain unknown contingent,* whose capriciousness of migration, partial subjection to temperature, and other habitudes, suggest the probability of animalcular hypothesis.

Whatever the theory, the lesson from all the facts is one (often told but not yet well learned) of hygiene and prevention. Cities should be built and regulated to prevent epidemics, as they should be to afford security from conflagrations. The laws of public benevolence, like those of private morality, are an essential part of the economy of the world. As personal vice brings misery, by the violation of physical laws, so the aggregate vice of communities, and the neglect of the higher classes to do their best for those around them, meet with retribution, in those scourges which, under the forms of plague, cholera, typhus, and yellow fever, desolate populations almost in proportion to the errors of their local life.—*Philadelphia Medical Examiner, August* 1855.

EXTRACTS FROM REPORTS ON EPIDEMIC CHOLERA (BY DRS BALY AND GULL) DRAWN UP AT THE DESIRE OF A COMMITTEE OF THE ROYAL COLLEGE OF PHYSICIANS (LONDON), 1854.

Of the six theories mentioned at pages 4 and 5 of this Report, that alone is supported by a large amount of evidence, which regards the cause of cholera as *a matter increasing by some process, whether chemical or organic, in impure or damp air,* and assumes that, although, of course, diffused with the air, it is also distributed and *diffused by means of human intercourse.*

The possibility, that cholera is occasionally communicated by a virus produced in, and emanating from, the sick, has already been admitted; and other questions relative to the means by which the cause of the disease is disseminated, and its introduction into the human body effected, have been left open for further inquiry.

From among the great features of a cholera epidemic, three stand forth as of paramount importance: one, the undoubted influence of locality, and of the sanitary condition of towns and dwellings, on the degree of severity with which the epidemic visits them; a second, the equally certain influence of season and temperature, together with some unknown condition of the atmosphere on the general prevalence, and rate of extension of the epidemic; and a third, the share taken by human intercourse, in determining not only the progress of the epidemic, and the direction of its advance, across a continent, but also its extension from continent to continent, and most probably its communication from one town to another in the same country, and from one locality to another in the same town.

This third great feature of the disease is less generally admitted than the two others; but the question here is not whether the evidence is so complete as to compel belief, but simply whether it amounts to so great a degree of probability, that it cannot wisely be neglected in the consideration of the measures to be taken for the prevention, arrest, or mitigation of a destructive pestilence.

Of these, the most important is the provision of spacious and well-ventilated buildings in airy dry sites, for the reception of the inhabitants of the infected spot, while their dwellings are cleansed and disinfected. These "*houses of refuge*," it cannot be doubted, have saved many lives from destruction by cholera, both in this country and on the continent. *No considerable town should be without one;* and several should be prepared in the environs of the larger cities. The "houses of refuge" would receive the healthy, but for those already labouring under cholera other asylums must be found.

ACCOUNT OF THE ORIGIN OF CHOLERA IN SUNDERLAND IN THE YEARS 1848 AND 1849. BY DR J. BROWN.

"In *no town in this neighbourhood* where I have had an opportunity of investigating its origin has the epidemic appeared, till after the arrival there, from an infected district, of persons either ill of the disease, or sickening there immediately after."

(Dr Brown gives, on authority of Mr Mordey, the quarantine surgeon, notices of several cases of cholera that occurred in the five following ships—October 1, 1848, the *Orb*, from Hamburgh; October 3, the *Volant*, from Hamburgh; October 13, the *Roberts*, from London; October 14, the *Chasse Marée*, from Nantes; October 17, the *Anne*, from Lynn.)

"These were the first cases imported. All quarantine ceased on the 14th of October; still many ships arriving with sick crews continued to sail to the upper part of the river." . . . "The first unequivocal case which took place here" (on shore) "occurred in an isolated country house, large, well-ventilated, and perfectly cleanly; the only supposable objection to it as a residence being, that it stood on clayey and undrained land, and consequently that the adjacent ground was damp in wet weather. It was situated about a quarter of a mile from the river, on its north bank, and about three miles above our bridge. The ships in quarantine lay in the direction of the house, but no one of them so high up. The subject of the case was a delicate female recovering from her accouchement. She had diarrhœa on the 16th of October, for which medicines were prescribed. She was understood to be better for a period; but was attacked with vomiting on the 25th, and when her medical attendants were summoned to her on the 26th, they found her in a state of hopeless collapse from cholera; and she died about five hours after their arrival."

"It is true, that the house was situated at some distance, nearly a mile, from where the ships lay, but exactly in the direction in which the prevailing easterly winds would convey any effluvia from the vessels, without interjacent obstacles to its reaching the house."

The ships "had continued to accumulate in the same part of the river, and beyond it, up to the period of her attack."

"The next case that occurred, except some on board of ships lying in the river, was likewise on the north bank of the river, a good deal lower down than the situation of the last case, but still above the bridge. It took place in a house belonging to Monkwearmouth Colliery, but not, strictly speaking, within the colliery, situated immediately over the point of the river where the *Chasse Marée* (No. 4 on Mr Mordey's list of ships infected), on board of which a boy, Francis Monsey, died on the 14th of October, lay at the time of his death, and where she continued to lie for some time after. The subject of the case was a collier, 18 years of age. He sickened on the 5th, and died on the 6th of November. The house in which he lived was not above fifty yards from where the *Chasse Marée* lay."

This case "may have arisen by direct communication with the crew of the infected vessels, for all quarantine ceased on the 14th of October: there is, however, no evidence of such direct communication, and there is no difficulty in conceiving that some emanation from the infected vessels should reach and infect an inhabitant of a cottage very near that point of a narrow river at which the vessels lay, and with no intervening obstacle between the cottage and the river."

"On the 17th of the same month" (November 1848), "another pitman named Spence, aged about 50, was brought up from his work in the pit ill of cholera, and died on the 18th. This person lived in the centre of the colliery, in one of those long rows of cottages which are built by the colliery owners, and let to the workmen as part of their wages. It was certainly at some distance, perhaps two hundred yards, from the residence of the former man; but . . . persons of the class we are at present speaking of constantly continued at work in spite of the diarrhœa, and did not quit till collapse compelled them, and the men were workmen in the same colliery."

"The man Spence . . . might have received the disease from the boy, his fellow-workman, in the close atmosphere of the pit. His house was much more remote from the river than the residence of the boy, with its front to the north, or away from the river, and many buildings interjacent between it and the river." Twelve days intervened between the attack of the boy and that of Spence; but "the class of persons in question always dated the disease from the stage of collapse, not from the initiatory or diarrhœal stages, which may last for days."

"On the 26th of November, the disease became so general in the colliery as to merit the name of epidemic; for on that day four sickened, of whom three died, and on the following day (27th) eleven sickened, of whom five died. From this period it continued to prevail in the colliery, and in its environs, among people connected with it, till the early part of January, when it totally ceased. In the meantime, the *town in general* remained exempt from the disease."

"That Spence had been the *focus* whence these individuals received the infection, is the most reasonable supposition that the subject admits."

"At intervals (after the epidemic in the colliery), persons ill of the disease continued to arrive from London, or other places where it prevailed, and again we had an outbreak of cholera, commencing March 5th of the present year. I cannot, however, connect this outbreak with any particular case or cases of importation, although many such had occurred. Its main range was Sunderland parish: that is, the eastern part of our town on the south side of the river, whereas the preceding seizure was in the western part on the north side; so that a mile intervened between the affected localities. It appeared simultaneously in various parts of the parish, and with such severity, that, from the 7th to the 11th of March, forty-four persons sickened, of whom twenty died, and on the 12th and 13th twenty-eight persons were attacked, and twelve died. This epidemic commenced on the 5th of March, and ended on the 6th of April. One hundred and thirty persons perished in Sunderland parish alone." "Prior to this outbreak there had been the arrival of vessels from infected ports, and the landing of sick from them into the part of the town where this epidemic especially prevailed, that part where seafaring persons and their families principally reside. One such case, and that a fatal one, in the person of a master mariner landed sick from London, I visited on the 15th of February, or just eighteen days before the outbreak, in this very locality, and other cases occurred seen by other parties. But when *foci* of infection become multiplied in a crowded locality, and the number attacked is considerable, it is impossible to trace the contamination from individual to individual."

"From the 6th of April to near the close of June, we enjoyed here a total exemption from cholera, when on Thursday, the 28th of June, a sailor of the name of Maynard was landed from a ship from London. He had suffered from the ordinary symptoms of cholera on the passage, and was in the febrile stage when he was landed and conveyed to his father's house, which was in Bishopwearmouth, immediately behind my own. He lingered in this stage till Monday, July 2d, when he died. The family now consisted of only the father and mother. On Wednesday, July 4th, the mother became affected with diarrhœa, and when she was first visited on Friday morning, July 6th, by a respectable surgeon and myself, she was in a state of hopeless collapse, and she died that night. The father did not take the disease, nor did I hear of any case apparently derived from the sailor boy, excepting his mother's. But I speedily heard of cases of cholera in various parts of the town, especially among pilots and their families—a class of men very likely to be brought into proximity with the disease; and I found on inquiry that the father of the family first sickened, and then the other members became affected. At the same time it should be remarked, that what occurred in the case of the sailor boy Maynard was going on in various parts of the town. . . . Under these circumstances, it will surprise no one familiar with epidemics and their propagation, to learn that cholera is at this moment (September 1849) prevailing extensively in Sunderland." . . . .

"The sickening of Mrs Maynard" (took place) . . . "in a clean and comfortable house, on the 4th July, where there had been no cholera in the town for nearly three months, that is, from the 6th April." . . . "She attended incessantly on her son from the 28th June, the time when he landed ill of cholera from London, to the time of his death, July 2d, there being no other case of the disease existing in the town at the time. I can discern no source of the disease but the body of her sick son." . . . .

"The most reasonable explanation that the first of the above group of cases admits of, appears to me that proposed by Drs Russell and Barry, with respect to the outbreak of cholera at Dantzic in 1831." . . . "It did not reach Dantzic till after the arrival there of ships, some of them infected, from St Petersburgh, shortly after which the disease spread through the former place, although no communication had been allowed between the crews of the infected vessels and the town. The best explanation these gentlemen found to offer was, that the emanations from the infected vessels, conveyed by the wind, had spread the disease through the town."

"In the case of the party first attacked" (at Sunderland), "only some such explanation is discoverable." . . . "That the vessels were infected is beyond a question, for *all had lost at least one*, some more, of their crews; and those acquainted with the diffusion of malaria, which, it is well known, is often conveyed at least a league, as in the case of the exhalation from Lake Agnano reaching the Convent of Camaldules, will have no difficulty in understanding how the contaminated atmosphere from these vessels, whether the taint be considered to have proceeded from the bodies of the sick, to have been engendered by the dirt and foulness within the vessel, or from both combined, may be wafted by a favourable wind to the distance of a mile, and there affect a person predisposed by debility to its action. Whatever may be thought of this view, it must be deemed much more reasonable and probable than that of an epidemic atmosphere extending its *influence* over thousands of square miles, and yet affecting only a few square feet in the township of Hylton and parish of Bishopwearmouth, and two points at the opposite extremities of this vast area—London and Dundee."—*Extracts from Reports, etc.*, pp. 223–231; and *Appendix*, pp. 341–345.

EXTRACTS FROM MEMOIR ON THE CHOLERA AT OXFORD IN 1854. BY H. W. ACLAND, M.D., F.R.S., FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, PHYSICIAN TO THE RADCLIFFE INFIRMARY, ETC., ETC.

The first case occurred in Jericho, at the north end of the town, in a street called Walton Road; the second at almost the extreme south, in the parish of St Ebbe's, in Gas Street; the third, fourth, fifth, sixth, seventh, eighth, in the same block of houses as the second; the ninth in the street next to that in which this block is situated; the tenth in the same block: the eleventh in a yard leading out of St Aldate's, part of a main street which runs north and south through the whole length of the town; the twelfth in a yard close by the ninth; the thirteenth in the extreme east of the town, St Clement's; the fourteenth in Church Street, St Ebbe's; the fifteenth in a house-boat on the river; the sixteenth close to cases nine and twelve; the seventeenth near the block in Gas Street; the eighteenth in the highest and most central part of the town; the nineteenth victim was a countryman, taken ill suddenly in the most open part of the city; the twentieth a professional gentleman, or casual visitor in St Aldate's; the twenty-second, another case in the block in Gas Street; the twenty-third in the neighbourhood of the first case; the twenty-fourth, twenty-seventh, twenty-eighth, and thirtieth, were the first set in the poor district of St Thomas's; the twenty-fifth was in St Ebbe's, near Paradise Square; while the twenty-sixth and twenty-ninth were in the neighbourhood of the great focus in Gas Street.

As far as it is proper to surmise conclusions from these data, we are irresistibly led towards the supposition, that cholera may arise without communication with infected districts on the part of those attacked, but also that *it does spread*, under some circumstances and in some localities, from person to person.—*Acland's Memoir on the Cholera at Oxford*, p. 21.

We have here two gaols, a city gaol and a county gaol. Neither in 1832, nor in 1849, were there any cases in the city gaol; in the county gaol there were in 1832, 3 cases; in 1849, 14. The knowledge of these facts made me very anxious to note the circumstances of the gaol in any subsequent epidemic. This year (1854) the opportunity presented itself. The surgeon of the county gaol, Mr Wood, having reported that there were many cases of choleraic diarrhœa, and some of cholera of special malignity, in the prison, the writer was desired to inspect the prison. The result of this inspection is quoted from the report presented to the Magistrates:—

"There have been 4 cases of cholera, of which 3 have died—the two first and the fourth cases were fatal. The first had been in the prison about one month; the second and third for several months; the fourth was still in the reception cell." . . . "Three of the officers resident in the prison, and one who resides out of it, have had diarrhœa." . . . "I regret to add, that on paying a second visit to the gaol yesterday, I found another sudden and virulent case of cholera. It terminated fatally."

"Already, out of 12 debtors, 5 have had diarrhœa; out of 59 felons and misdemeanants, 19; out of 15 trial men, 7; of 9 women, 6; making a total of 37 out of 95 attacked by diarrhœa in a fortnight, besides the cases of cholera above described."

On this same day (Sept. 29), it was ascertained that in the city gaol there had been *no cases* of diarrhœa of any consequence, and none of cholera. The two prisons are not far from each other. The county prison is admirably managed—the officers are attentive, humane men—the surgeon an accomplished practitioner. What could be the cause?

At a short distance from the gaol, flows a branch of the river, through St Thomas's, one of those described above. It passed through a mill, the Castle Mill—is dammed up for the mill-head, above the mill—and when flowing through the mill, forms a brisk stream in the mill-tail, carrying with it whatever impurities it obtained in the mill-head. When the mill is not at work, and the water is ponded up, the mill-tail becomes, as all such spots do, a nearly stagnant pool. This year (1854), the river was unusually low, and at the date of my inspection of the prison, this pool contained various garbage stationary on its surface and its bottom. Further, a drain from the prison flowed into the pool; within ten feet of the mouth of this running drain, the supply-pipe from the prison sucked up the contents of the pool for the prison use. From this source the kitchen coppers were supplied, and with this water the soup and the gruel, important articles in the weekly diet, were made.

No sooner was the attention of the governor of the prison drawn to this fact —barren though it might appear to be—than the pipes were cut off: and what followed? Whereas, before this, there had occurred 20 cases of choleraic diarrhœa, and 5 cases of cholera, of which 4 were fatal; after the following day (Sept. 29), no more than 3 of choleraic diarrhœa, and 1 of cholera (none being fatal), were reported during the rest of the epidemic.

Whatever opinions there may be concerning the effect of water generally in the production of cholera, we cannot reasonably doubt the immediate connection between *the water and the existence of the disease*, nor question the cause of its cessation in this particular instance.—*Acland's Memoir on the Cholera at Oxford*, p. 51.

SUMMARY OF THE PRINCIPAL CONCLUSIONS.

1. The history both of the city and the surrounding districts, unite in giving weight to the belief in the origin of cholera without communication with other cholera districts.

2. Both the city and the district give evidence of the occasional communication of the disease from *place to place*, and from *person to person.*

3. They both lead us to the conviction, that places, and attendants on cholera patients, may enjoy a perfect immunity from contagion.

4. From the survey of the city, we are inclined to believe that this immunity is less probable *in proportion as less attention is paid to the destruction of the evacuations.*

5. Contact with the evacuations is therefore *exceedingly dangerous.*

6. The hypothesis which refers diarrhœa to the state of the atmosphere, and cholera to the metamorphosis of diarrhœa evacuations by and in that atmosphere, derives support from these considerations.

7. The poison of the evacuations may be conveyed through the air, or by the agency of water.

8. Therefore, poisoned water, though one means of spreading the disease, is not the only means.

9. For these reasons, and from the facts observed, we may conclude, and do assert, that crowded dwellings, and imperfect ventilation, are dangerous, in the highest degeee, during the prevalence of a cholera atmosphere, to those who are subjected to them, just as they are ruinous to health at other times.

10. We must therefore conclude, that such dwellings, and such bad ventilation, are dangerous, not only to the persons exposed to them, but to the whole district or town which surrounds them.

11. A low scale of diet favours diarrhœa, and a better diet tends to check it.

12. Occupation exercised no marked influence in this district, and, indeed, persons in easy circumstances were more attacked proportionally, than nightsoil men, who work mostly in the open air.

13. The lower half of this city was most attacked; but the lives of those who reside in the upper and drained portions, are unquestionably endangered by the condition of the lower and undrained parts.

14. Preparations for epidemic disease should not be left till the disease appears; there should therefore be wards in every town, proper for receiving persons and their families suffering from such disease.

15. Common prudence suggests that these wards should, in hospital towns of moderate size, be attached to, and be managed by, the hospital; that in smaller districts, as the law now stands, they should be under the control of the guardians; and that in a few of our largest towns, separate establishments may be founded for the purpose.

16. Such habitual preparation is, if discreetly contrived, less costly than the arrangements necessarily resorted to during the emergency.

17. All the known conditions for favouring the spread of cholera existed in Oxford: some have been attended to, and remedied—some have been neglected, and are not remedied. All known local causes may, by systematic forethought, be either removed from the city, or anticipated and guarded against.—*Acland's Memoirs of the Cholera at Oxford*, p. 83.

Two conclusions seem to be unavoidable from this epidemic, and both seem to be borne out by the history of cholera in other places, both in 1854 and in previous visitations—1st, That the cases may occur, as it is said, sporadically—2d, That they may spread by communication.

As to those that occur sporadically, it is generally supposed that there is some traceable cause connected with drainage—foul water, and the like. But no such cause could be shown in the first case in Oxford, or in the Oakley cases, or in the Little Melton cases. But, then, the evidence is only negative in all these instances. There may have been communication by clothes or otherwise, undetected. It is not, however, easy to believe that in all the instances of undiscovered communication, there had been either unknown contact, or unintentional deceit.

But, secondly, it is not to be doubted that it also spread in this district by communication. On this point, at the close of the epidemic, the following question was addressed to the practitioners who had attended cholera cases:—

"Can you communicate any *facts* which have occurred in Oxford, to lead you to believe the disease to be contagious, and in what manner do you believe it to have been communicated?"

These questions are answered in the affirmative, and to these cases of presumptive dissemination of the disease by means of communication from house to house, and of communicability through the agency of clothes, within the town, must be added all the cases in the neighbourhood distinctly traceable to intercourse with Oxford.—*Acland's Memoir on the Cholera at Oxford*, p. 78.

As to the effects of any known condition of the atmosphere, the following are the results of very numerous and careful observations:—

The years 1832 and 1854 are both very abnormal, but in every other respect, except those first mentioned, in *opposite directions.* Hence we might be led to infer, that meteorological excesses, in either direction, are equally favourable to the development of this disease. But, then, how are we to account for its appearance in 1849, which, viewed altogether, is by no means an abnormal year?

There is, however, one point which the table brings out very strongly, that is, the extraordinary character of 1854. Except in the solitary condition of mean temperature, every thing is abnormal. Excessive in atmospheric pressure, and daily variations of temperature, deficient in rain and wind, abnormal in the direction of wind; excessive in the display of electrical phenomena; as if to complete meteorological paradox, this same year, remarkable for the abundance of its harvest, was not less remarkable for pestilence and its consequent mortality."—*Acland's Memoir on the Cholera at Oxford*, p. 63.

There were, between the 27th of August and the 16th of October, three periods of increase, and the corresponding periods of diminution, of diarrhœa, cholera, and ozone—with this difference only, that, whereas the greatest amount indicated by the ozonometors in the first period, coincided with the worst cholera day, in the following, the maximum of ozone followed that of cholera.—*Acland's Memoir on the Cholera at Oxford*, p. 65.

ON THE FRENGA OF SERVIA. BY PROFESSOR SIGMUND OF VIENNA.

Frenga is the name given to a disease alleged to be endemic to Servia, described as contagious, and characterized by obstinate and extensive ulcerations situated on different parts of the body, but most frequently on the face, in the nasal, buccal, or œsophageal cavities, and accompanied with pain and destruction of the bones. It prevails, for the most part, in those localities of Servia, occupied, in 1810, by the combined Russian and Servian forces and the army of the Turks. Before that period the disease was unknown.

The non-identity of frenga with syphilis was the doctrine upheld by a medical committee, and the malady was regarded as one of a peculiar nature, idiopathic in its character, and analogous to no other disease except the "malo di Skerljevo." Professor Sigmund, throwing aside such cases as were not those of frenga, properly so called, has investigated the disease on the spot, and also treated several examples of it occurring among Servians at Vienna; and he ascribes it either to the existence of scrofula, or to old-standing and neglected syphilis, or to a combination of both of these affections. Among nine instances of it detailed by him, two were evidently syphilitic, and traceable as far as the primary form of that disease; three were syphilitic, but the chain of connection between the two diseases could not be so completely followed; four exhibited all the marks of confirmed scrofula.

Hereditary syphilis exercises an important influence in the etiology of the disease. According to Professor Sigmund, this comprehends not only those phenomena ordinarily recognised in this constitutional taint, but others which, developed as late as the seventeenth year and upwards, are traceable to it, such as lupus, tubercular diseases of the soft parts, many diseases of the cartilages, bones, etc. etc.; and, although he cannot positively decide upon the question of the syphilitic origin of scrofula, yet the frequency of scrofulous diseases among the children of syphilitic parents, appears to him to countenance the idea of some connection existing between these two affections also.

The popular idea attaches a contagious nature to frenga; but while the medical committee above mentioned did not refute this doctrine, M. Sigmund formally denies its accuracy. A rapid recovery from this disease often takes place under proper treatment. In Servia, the medical committee extols the effects of mercurial preparations,—iodine having but little effect. According to his own observations, M. Sigmund remarks, that mercury is successful in the syphilitic forms of the malady,—iodine here, as in the ordinary forms of syphilis, not affording durable effects, unless accompanied with, or preceded by, the exhibition of mercury. The ioduret of iron has been attended with good results in the hands of our colleague at Vienna, as appears from the instances cited by him.

The diseases known by the names of la falcadine, la bôala, and le skerljevo, are affections identical in their nature with frenga, and have been made the subjects of careful research by M. Sigmund in those countries to which they properly belong. They appear throughout to possess the same characters, and have been imported towards the end of the last or the beginning of the present century, and are known merely by different names in different countries. Thus, *la falcadine* derives its name from Falcade, a village in the province of Bellune, on the frontiers of Tyrol. The *male di breno* is the same disease under a different appellation, derived from a village of that name near Raguse. *La bôala* is confined to the Danubian principalities; and, lastly, *le skerljevo* is more especially found in littoral tracts on the borders of Dalmatia and Hungary, and of Italy and Germany, and it also is named after a village near Fiume. *La radesyge Norvégienne* is identical with these diseases, and depends upon the same etiological causes.

M. Sigmund terminates his remarks with the following conclusions:—

1*st*. The names of frenga, falcadine, male di breno, bôala, and male di skerljevo, were first applied to pathological conditions which history and tradition have shown to be syphilitic. They originated from contagion, from the introduction of syphilis by foreigners (des étrangers), and its subsequently rapid extension.

2*d*. At a later period, these names were applied to other diseases, most frequently to ulcers and eruptions of a similar aspect. In this manner, all forms of scrofula, scurvy, eczema, prurigo, scabies, favus, cancer, and even encysted tumours, began to be comprised under these terms, now become popular, and adopted by the authorities as well as medical men. Thus, the names primarily used to signify only syphilitic affections, gradually lost their signification, and became collective appellations for diseases of the most varied description.

3*d*. The largest proportion, and the most characteristic specimens of these maladies, belong, at the present day, to the family of syphilis. They are found, as acquired or hereditary forms, in Servia, the Danubian principalities, Italy, etc., in greater numbers, and more distinctly marked, than in other countries, but in the same stages, and with similar complications. These countries do not possess any special form of syphilis.

4*th*. The same causes which favour the extension of syphilis, and the neglect of its consequences, were, and are still, the means of its origin and duration.

5*th*. The names of frenga, etc., are useless, and should be expunged from the nosological catalogue, and the true name of the diseases substituted in their stead. This is a measure of much importance, in order that a more rational system be instituted and followed out in their treatment.—*Zeitschr. d. K. K. gesellsch. d. aerzte zu Wien.*, 1855, Nos. 1, 2, 3, et 4; and *L'Union Médicale*, Aug. 28th, and Sept. 11th, 1855.

SURGERY.

SURGICAL CASES FROM SCUTARI HOSPITAL.

CASE I.—*Gunshot Wound of Head. Reported by Staff Assistant-Surgeon* D. CAMPBELL TAYLOR.

Corporal David Lovett, 63d Regiment, admitted into hospital November 27, 1854, for gunshot wound of the head, received at Inkermann, while kneeling, in the act of discharging his rifle: the ball struck his head over left parietal bone, close to sagittal suture, and split; one half appeared to have entered the cranium, while the other passed between the scalp and cranium to the occiput, whence it was extracted. Patient was insensible for two days after receipt of injury, and, on admission into hospital, was still hemiplegic on the right side; his mental faculties were not affected; he returned rational answers to questions put to him, and complained of no pain. Pupils were dilated; pulse 100. Ordered purgatives; cold water dressing to wound; spoon diet.

December 2d.—Slight power of flexing forearm, but no power of grasping anything in the hand. Right leg still powerless; pupils dilated. Ordered alterative doses of blue pill.

December 13th.—Two pieces of bone were extracted this morning, one of which was marked with lead; the pulsations of the brain can be plainly seen through the opening in cranium. Blue pill and water dressing continued.

December 29th.—Patient has now some command over right leg, being able to flex it when lying on his back; wound doing well. Continuantur medicamenta.

January 15th, 1855.—Since last report, there has been marked improvement. Patient can sit up in bed, and feed and wash himself; wound healing.

February 24th.—Patient has now perfect use of his right arm, but the right leg is still weak; he cannot put it firmly on the ground, and he drags it after him in walking; wound healed. Invalided to England.

CASE II.—*Gunshot Injury of Leg—Amputation—Secondary Hæmorrhage from Stump. Reported by Assistant-Surgeon* HOLTON, *2d Queen's Royals.*

A Russian soldier was struck by a musket-ball, which shattered the bones of the right leg, a little below the knee. About a month after the receipt of the injury, it was found necessary to remove the limb, which was done by a circular operation about the junction of the lower and middle third. Secondary hæmorrhage occurred on the eighth day after the operation, from the inner angle of the cicatrix. Compression was applied over the trunk of the femoral artery; cold applied to the stump; this checked the hæmorrhage at the time, but it recurred several times, to a greater or less amount, during the following week. The patient was consequently reduced to a very low state, and it was deemed expedient to cut down and tie the bleeding vessel. This was performed by Dr Holton, by laying open the cicatrix for about three inches on the face of the stump. On separating the edges of the wound, a clot, about the size of a large egg, was found, and the hæmorrhage evidently proceeded from the main artery, which appeared healthy. The clot was turned out, and a ligature applied to the bleeding mouth of the artery. Notwithstanding the low state to which he was reduced, his pulse being scarcely perceptible, under the judicious use of stimulants he rallied, and the stump healed without any return of the bleeding.

Case III.—*Gunshot Wound of Groin. Reported by Staff Assistant-Surgeon* D. Campbell Taylor.

Henry White, admitted into hospital June 26, 1855, with a gunshot wound of the left groin, received in action on the 18th. The ball entered a little below Poupart's ligament, external to the pubis, passed downwards, backwards, and outwards, through internal femoral and gluteal region, and escaped posteriorly. On admission, there was profuse discharge from the wound, and numbness along the inside of the thigh, but the limb can be used without difficulty. July 4th.—Aperture of entrance much smaller, discharge less in quantity, and healthy. On the evening of the 1st instant there was slight hæmorrhage. 8th.—Wound improving fast; no return of the hæmorrhage. 15th.—A piece of cloth was extracted yesterday from the anterior aperture. Still in hospital, but doing well.

Case IV.—*Gunshot Injury of Arm and Leg—Secondary Hæmorrhage—Ligature of Brachial Artery. Reported by Staff Assistant-Surgeon* Hinde.

Serjeant George Anderson, 34th Regiment, æt. 27, was wounded on 18th June, in the left arm and leg. The ball entered the arm at about the junction of the middle with the lower third, passed backwards and inwards, and came out about three inches above the elbow joint. He lay on the field from four in the morning until six o'clock in the evening, when he was conveyed direct on board ship, where he remained for two days. On his passage down to Scutari, hæmorrhage took place from the wound in the arm. A tourniquet was immediately applied, which controlled the bleeding. When admitted into the Barrack Hospital, on the morning of the 24th, under the care of Mr Best, Civil Medical Staff, he appeared very low and weak, and looked as if he had lost a considerable quantity of blood. He complained of great pain, which was accounted for by the swelling and œdema of the arm, supposed to be probably occasioned by the necessary pressure of the tourniquet. After he had been in the ward some time, pressure was cautiously and gradually diminished, and no blood appeared. About four o'clock on the morning of the 28th, hæmorrhage, to about the amount of 1½ oz., took place, and the tourniquet was again tightened. About eleven o'clock, as he complained of excessive pain, the instrument was made slack. He then appeared very easy, and slept until about three o'clock. While Mr Hinde was in the ward, he called out that it was bleeding again. It was stopped by pressure in four or five minutes, but not before he had lost fully 1½ pint of blood. This made him very faint. His face was blanched, and his pulse imperceptible at the wrist. He was a little revived by the use of stimulants, which he could only take in very small quantities at a time, owing to the excessive irritability of his stomach. As there was now no doubt that the brachial artery was wounded, Mr Best determined upon at once applying a ligature to that vessel at the seat of injury. Accordingly, he cut down on the vessel in the course of the wound, discovered the opening in the artery, and applied ligatures above and below the opening. There was not 1 oz. of blood lost during the operation, and the edges of the wound were brought together in the usual manner. He never made the slightest attempt at a rally, and died about an hour after the operation was performed.

An examination was made of the injured arm, and it was found that the median and internal cutaneous nerves had been divided by the ball. The two venæ comites were also completely divided. The biceps muscle was torn, and there was a considerable amount of effusion of blood into the limb; the brachial artery had been wounded about one inch and a half above its bifurcation; the ligatures had been applied properly above and below the wound in the artery.

Remarks.—Case No. I. is, I think, interesting, as showing the possibility of a ball splitting; an ignorance of this fact might and has misled surgeons. It is also interesting, as showing the possibility of recovery, from such serious consequences as must result from the lodgement of a foreign body, such as a bullet, in or upon the brain, supposing the symptoms detailed to have resulted from this cause. No doubt, the symptoms might have been those of compression, caused by the pieces of bone which were extracted; but there is every reason to believe that a portion of the bullet is somewhere within the cranium. Mr Guthrie appears to think, that persons rarely recover with a ball lodged in the anterior lobes of the brain, and cites cases, in which the patient having apparently perfectly recovered from the effects of such an injury, died afterwards suddenly. It would be interesting to watch this case.

Case II. involves a point of practice, as to whether, in such cases, the course to be adopted should be ligature of the artery high up, or cutting down upon the face of the stump and tying the vessel there. First Class Staff Surgeon, Delmege, who has had considerable experience in gunshot wounds, informs me, that in those cases in which the femoral artery has been tied in Scarpa's angle, in cases of secondary hæmorrhage from the stump after amputation of the thigh, sloughing of the stump has frequently occurred from the supply of blood by anastamoses being cut off.

Case III. is only an instance of the manner in which arteries appear to be pushed aside by a ball; otherwise, in this case, how did the intervening circumflex artery, or the large anastomosing branches of the circumflex and sciatic arteries at the back of the thigh, escape?

In Case IV., even if the patient had lived, the limb could scarcely have been saved, judging from the amount of injury done to the veins and nerves. Gangrene would most probably set in. In such cases, where hæmorrhage recurs more than once, and that there is a suspicion of the main artery being the injured vessel, I believe the safest practice would be to cut down upon it at once, and tie it at the seat of injury.—*Dublin Hospital Gazette, August* 15, 1855.

CASE OF MUSKET-BALL IN THE BLADDER. BY JAMES W. ROBINSON, M.D.

I was called six miles west on the road leading from Chambersburg to Pittsburg, to see a patient, who presented the following history:—

He was a man between thirty and thirty-five years of age, of good physical development, and unquestionably at one time of fine constitution. Two years previous to the time he fell under my care, he was engaged in trading, in the State of Texas, whither he had migrated from Cincinnati, his former home. While pursuing his avocation in that State, he received a shot from a musket-ball, which entered the depression formed by the glutei muscles on the outside of the hip, and passing through, behind the femur, lodged, he could not tell where. He lay for some weeks from the effects of the wound, without any medical or surgical treatment, and finally recovered sufficiently to return to Cincinnati. Here he entered the hospital, where he informed me that he suffered for some time from a vesico-rectal fistula, which was eventually cured by repeated cauterization; also, that either the wadding of the gun or a portion of his clothing driven before the bullet, had been removed by an operation, from the cavity of the bladder. During all this period, and up to the time at which I met with him, he could only pass his urine with much pain, by aid of a gum catheter which he had learnt to insert himself, and carried constantly with him; the urine always being loaded with more or less purulent matter. Life becoming a burden to him in this situation, and his means of subsistence being reduced to an extremity, and not satisfied with what had been done for him in the Cincinnati hospital, he made his way to a similar institution in Pittsburg, at which place nothing more in the way of an operation was attempted, and no prospect of relief afforded him. He entertained some vague notion that an operation might be performed which would relieve his condition, but had no conception of the nature or rationale of it. Hence he conceived the idea, no doubt from the advice of some other person, of endeavouring to seek his way from Pittsburg to the Pennsylvania Hospital at Philadelphia, for the purpose of presenting his case to the surgeons of that institution. With that in view, his last hope of earthly comfort, he started from Pittsburg in his critical state of health, on foot and without money.

Buoyed up with the prospect of a relief of his sufferings, he travelled on at a slow pace, in the month of October, the weather cold and his clothing light. On one of the days in the latter part of that month, there came on a heavy storm of snow and rain, lasting throughout the day, and covering the ground to a considerable depth. During the whole of this day he wandered over long and steep hills, drenched with rain and chilled with snow, and halted at night at a tavern 116 miles of Pittsburg, sick and exhausted, his day's journey having sown within him the seeds of death. After lying sick for a number of days without any medical treatment or attendance, I was called upon to visit him. I found him in a miserable condition, complaining of intense pain over the left kidney and in the region of the bladder, and passing, by means of the catheter, considerable quantities of urine heavily charged with pus, with much suffering during the evacuation of the bladder. He had laboured under considerable febrile reaction, which had now assumed a real typhus type. He had for a length of time, that is in all probability ever since he received the wound, suffered from chronic inflammation of the bladder, which was forced into a more active state by his exposure to the inclement weather, while there was superadded evident acute inflammation of the left kidney. His tongue had assumed the dark brown or blackish aspect, so characteristic of his low typhous condition, with all the other symptoms corresponding. In the way of treatment, my efforts were directed towards effecting a mercurial impression, both by internal and external use, but without avail. Demulcents and stimulants, ammonia and wine, and finally brandy, and the application of powerful sinapisms and other medicines, and applications which have escaped my memory, and the recollection of which for our present purpose would be of little importance, were also used. He seemed to rally slightly sometimes, but lingering on for near ten days, he sank and died under copious hæmorrhage from the bladder and bowels simultaneously. Two hours after death, I proceeded to make a *post-mortem* examination, which was, of necessity, very imperfect from the want of assistance, scarcely being able to procure the services of any one to furnish me a sufficiency of light (it being in the night), from the horror people out of the profession pretend to have for such operations. The examination, however, was sufficiently minute to invalidate my diagnosis, and to reveal a very remarkable case. The left kidney I found to be a mass of suppuration. The bladder was much indurated, and its coats thickened to an incredible extent. Laying open its walls I found within its cavity a musket-ball of the largest size, with a calculus three or four times the size of the bullet attached to its side. I have both the ball and the calculus in my possession, though they have become detached by violence. The ball weighs more than an ounce, and is the largest I ever saw. The calculus measures more than an inch in every dimension, except one, being a little flattened and of a cylindrical shape.

The singularity of the case is in the fact that a large musket-ball, with a portion of clothing, was driven entirely through the fleshy part of the hip within the cavity of the pelvis, and finding a lodgment in the bladder, allowed it to heal over it, and that it remained there for two years without causing disturbance inconsistent with life. Also, that after the first shock of the injury he underwent a partial recovery without any treatment. It is also very singular that he came through the hands of a number of surgeons, who failed even to detect the presence of these foreign bodies in the bladder. I regret very much that he did not reach the Pennsylvania Hospital in as good health as he left Pittsburg, then able to make a long journey on foot in bad weather. I am very sure the able surgeons of that veteran institution would not have mistaken his case, but would have unhesitatingly submitted him to the operation of lithotomy, with every prospect of saving his life and restoring his health.—*Medical Examiner, No. VI., June* 1855.

Part Fourth.

MEDICAL NEWS.

THE MONTH.

Palmer's Trial being now over, we shall submit, in an early number, a commentary on the whole Medical Evidence.

Appointments in London.—We are glad to announce the appointments of Mr Owen as superintendent of the Natural History Department of the British Museum, at a salary of L.800 ; and of Mr Quekett as Professor of Histology and Conservator of the Museum of the Royal College of Surgeons.

Sherburn Hospital.—A controversy has been raised between the Charity Commissioners and the Bishop of Durham, which, in our city of misapplied trusts, is not without interest. At Sherburn there is a richly-endowed hospital for lepers, which, owing to the happy disappearance of leprosy, has long been in abeyance. In this state of affairs, a proposal was made, and reasonably, as we think, to transfer L.3000 of the funds to the Durham Infirmary, and that the master of the establishment should continue to be a physician. To these proposals the Bishop of Durham objects, and instead, his Lordship contemplates, as patron of the hospital, to erect a church, at a cost of L.3000, and to make the officiating clergyman master of the institution. In Edinburgh, trusts have hitherto been administered in accordance with the designs of their founders ; but the gregarious tendency to give endowments for the education of children, has so outrun propriety, that the time has now arrived for a check of some kind being opposed. We trust, accordingly, that the important suggestion of our valued contributor, Dr Charles Wilson, contained in the review department of our last number, as to the institution of a Children's Hospital in the Scottish metropolis, will not be lost sight of.

Forging a Diploma.—In the Court of Criminal Appeal, a curious judgment has been given in the case of the Queen *v.* Henry Hodgson. The prisoner was tried and convicted at the last Stafford Assizes. The indictment charged him with having forged and uttered a diploma of the College of Surgeons, by erasing the name, which had originally been written upon an authentic diploma, and inserting his own in its place. On being questioned by two medical gentlemen if he were regularly qualified, he had produced this diploma, and at the same time represented himself to be duly qualified. The court was of opinion that the conviction was wrong, as it was necessary to show that it was a commission of forgery, with intent to commit a particular fraud, which had not been established in this case. The conviction therefore was quashed. If any doubts as to the necessity for a new Medical Bill have existed, this case will remove them. The essence of forgery is to deceive ; but the law has ruled that it is not enough to deceive society—it must be a particular fraud. In the Scotch courts, we have had convictions for diplomas wholly forged, but not for substituting one name for another, as was here charged.

MEDICO-CHIRURGICAL SOCIETY OF EDINBURGH.

SESSION XXXV., 1855-56.

May 7th 1856.—William Seller, M.D., President, in the Chair.

I. NEW PERCUSSION HAMMER.

Dr Warburton Begbie exhibited a percussion hammer and pleximeter, which had been forwarded to him by Dr Fraser Thomson of Perth. The hammer was very simple in its construction, and convenient in use, and was fitted to supersede the more expensive and weighty hammer of Dr Winterich, now in general use. It was simply a leaden bullet, covered with a layer of caoutchouc, and furnished with a handle of whalebone. It could be used either with the ordinary pleximeter, or on the fingers applied to the walls of the chest.

Dr Alexander Wood remarked, that he had shown this same simple instrument to his class, ten years ago, the only difference being, that the specimen in his possession, and which had been purchased in London, was covered with a layer of velvet instead of caoutchouc.

II. DOUBLE STETHOSCOPE.

Dr Begbie also exhibited a double stethoscope, invented by Dr Camman of New York, and which he had received from Dr Halley, an American physician, present at this meeting of the Society. Dr B. regarded this new instrument as a valuable adjuvant to the means already in use for the physical diagnosis of diseases of the chest.

III. CASE OF CANCER OF THE LUNG, FOLLOWING EXCISION OF THE MAMMA, FOR PRESUMED MALIGNANT DISEASE. BY FRASER THOMSON, M.D., PERTH.

This communication was read by the Secretary, and a preparation of a section of the diseased lung exhibited.

Three years ago the patient, æt. 58, had the right breast removed for what was believed to be a cancerous tumour; for two years she enjoyed good health, but dyspnœa and cough, accompanied with vomiting, supervened; three months ago she was admitted to the Perth Infirmary. On examination there was marked dullness under the left clavicle, and the respiratory sounds were harsh and feeble; she rapidly improved, and was dismissed in six weeks, but soon returned with her complaints much aggravated. A painful swelling had appeared over the left clavicle; and some days before death, acute œdema of the arm and leg, extending to the face, set in, and there was extreme dyspnœa. *Sectio cadaveris.*—The pleural cavities contained a large quantity of a turbid, reddish, serous fluid; the lungs were thickly studded with firm grey nodules; schirrhous matter, with melanotic admixture, was found in considerable quantity at the root of the lung; the pulmonary texture around these deposits was perfectly healthy, and no softening had occurred in the adventitious structures. The microscope discovered a dense fibrous stroma, but no cells distinguishable from those of the bronchial epithelium. Dr T. presented this as one of many cases which had come under his notice, of the recurrence of malignant disease, after an operation for its removal; in no case had the subject of operation lived five years without the disease having reappeared.

Dr Myrtle had lately seen a similar case to that just narrated. The operation of excision of the mamma had been performed, and the wound healed in every respect satisfactorily. Ten months afterwards the axillary glands became indurated and enlarged, and went on to ulceration; at the same time, the patient was affected with cough and expectoration, but there were no physical signs of pulmonary disease beyond a slight roughness of the respiratory murmur. The patient went to London, where she became worse, and was sent home again as labouring under a peculiar form of phthisis. There was extremely rapid pulse, much difficulty of breathing, and the usual râles which were present in this disease. On examination, after death, the lungs were found to be a mass of cancerous disease.

IV. CASE OF OBSTRUCTION OF THE PULMONARY ARTERY. BY PROFESSOR MILLER.

Professor Miller read the history of a case of an elderly gentleman, who had died rather suddenly, and exhibited symptoms which seemed, in the opinion of Professor M., referable to the formation, during life, of the clot, which was found completely obstructing the pulmonary artery. The paper was illustrated by a preparation of the parts. The cases recorded by Mr Paget, in his paper in the *Medico-Chirurgical Transactions* (vol. xxvii., p. 163), were referred to, but in none of these was there the complete obstruction of the vessel which this case exhibited.

(*The details of the case will be presented as a separate article in an early number of the Journal.*)

Dr W. T. Gairdner had frequently seen such enormous clots in the pulmonary artery in bodies which he had dissected, sometimes so completely filling the vessel and its branches as to exhibit a perfect cast of the semilunar valves and the sinuses behind them, and extending into the ramifications of the vessels in the lungs. He had usually found such clots in cases in which there were other diseases, and which presented symptoms, during life, which were doubtfully connected with the formation of the clot. These clots he had several times seen in patients who had died of pneumonia. These formations were found much more frequently in the pulmonary than in the systemic vessels. From the time of Morgagni, it had been a question, whether these clots had been formed during life, and he (Dr G.) was disposed to think, that with respect to some of them at least, the question was still unsettled. Mr Miller's case was remarkable, in that the symptoms had no other explanation than was afforded by the clot.

Dr Gairdner, sen., was of opinion, that the successive layers presented by the clot in Mr Miller's case, afforded a presumption that it had been formed before death. It was to be expected in clots formed during life, that the softer part of the mass should be within, while the *post mortem* clot was found to be harder inside.

Dr Charles Wilson mentioned that he had seen a case in which a clot in the veins passed through the chambers of the heart into the artery, where it was rolled up into masses. The length of it was such that it was wound up upon itself as a clue, a circumstance which proved that it had been formed during the life of the patient. In reference to Professor Miller's impression, that the sudden illness of his patient was connected with internal hæmorrhage from the rupture of a large vessel, Dr W. was of opinion that the distended condition of the jugular veins, as described, contra-indicated the existence of such a lesion. The only satisfactory diagnosis of such unusual cases, was to be accomplished *per viam exclusionis.*

Dr Andrew Wood was of opinion that the great accumulation of fat upon the heart, and the fatty degeneration exhibited by the muscular tissue itself, were sufficient to account for death, and left no necessity for assuming that the formation of the clot took place during the life of the patient, and was the cause of death.

Mr Turner, whose report of the dissection had been read by Professor Miller, was of opinion that the rounded form of the clot, and the exact mould of the vessel which it presented, were in favour of the view that it had been formed during life. The clots formed after death, which were so frequently to be met with, generally exhibited a flattened appearance. He believed that the rounded or flattened character of the clot, was sufficient to distinguish whether it was formed before or after death. In the present case, Mr T. was of opinion, that the clot had begun to form before the access of the immediately fatal attack.

Dr Sanders remarked that, if the clot was sufficiently large completely to plug up the artery, the case must be regarded as quite unique. A clot of this character could only result from the whole quantity of the blood in the vessel becoming solidified *en masse*.

Mr Edwards was of opinion that the formation of the clot might have begun in the bath, under the slow action produced by the impression made on the fatty heart of the patient by the unusual exertion and the increased temperature.

Professor Miller had presented this case to the Society, as suggesting many important and difficult questions. He was disposed to regard the fact, that the rest of the blood of the body was found to be in a preternaturally fluid state, as in favour of the view, that the formation of the clot in the pulmonary artery, was the cause of death. The heart presented both kinds of fatty accumulation, and the fibre itself was, to a large extent, changed, and its place supplied by fatty granules. This condition of the heart may have been the indirect cause of death, by leading to coagulation and asphyxia. The clots, which were so frequently found in the examination of bodies, were very rarely associated with any symptoms to lead to the supposition that they had been formed during life. In one of Mr Paget's cases, indeed, there was adhesion of the clot to the walls of the artery, without any symptom being observed to indicate the existence of such a formation; yet, Mr Paget believed that the clot might have been from three to ten days old. In the present case, the kidneys were affected, to a slight extent, with granular degeneration—a condition which was believed to induce such changes as hindered the free circulation, and favoured the coagulation, of the blood. He had not seen the important paper lately presented to the Society by Dr Struthers on jugular venesection in asphyxia, before the occurrence of this case, or very probably the inviting condition of the vein would have induced him to have recourse to the lancet, notwithstanding the unfavourable prognosis which he had formed.

V. RUBEOLA SPURIA.

The President inquired whether any member of the Society had any information to communicate on the peculiar rubeola which had been for some time prevalent in the city? It had attracted considerable attention, and he wished to know whether the true rubeola was also prevalent, and to what extent. In October last, 16 cases of measles were reported at the Royal Dispensary; but, he was of opinion that there were now many more cases of the spurious than the true measles, among those reported.

A conversation ensued, in which several members took part.

Dr Alexander Wood questioned the propriety of regarding this exanthematic disease as rubeola—in some of the cases he had seen, the eruption was decidedly papular—the affection does not seem to be contagious, for though it affects several members of the same family—it does not spread among those who come into contact with the patients. There could be no doubt that ordinary measles was prevailing to some extent, but there were many more cases of this other disease.

Dr Andrew Wood had seen cases in which the disease had occurred twice within a fortnight, and also cases which had previously been affected with the true rubeola.

Dr Myrtle mentioned that he had seen a patient, who had had both scarlatina and rubeola in a severe and decided form, four years ago—lately a febrile paroxysm occurred, followed by an eruption—that on the posterior surface of the body, from the head to the heels, being of a uniform scarlet—like the rash of scarlatina—while on the front, it was in patches—like the proper rubeola conferta. There was no subsequent desquamation.

Mr Benjamin Bell was of opinion, that the prevalent affection was to be regarded as measles without the catarrhal symptoms. The patches of eruption he had observed, had the characteristic crescentic arrangement of measles, while it had also the peculiar deep tint of scarlatina.

Dr Omond thought that an important feature of the exanthematous affection under remark, was the evanescent and unsteady character of the eruption.

Dr W. T. Gairdner had noticed the occurrence of the true measles in October last, and he had also seen cases throughout the winter months. There could be no doubt that the true measles had been present in the city, though not perhaps epidemic during that period.

VI. THE GENERAL HEALTH OF THE CITY.

Dr Andrew Wood requested the attention of the Society to the remarkable immunity from epidemic diseases which had characterized the past winter and the present time. He believed that the past had been the most healthy year remembered by the oldest inhabitant of this city, and he inquired whether this diminution of disease was attributable to improved sanatory measures which had been instituted, or to the more abundant supply of labour and increased comforts which the working-classes had enjoyed.

Dr W. T. Gairdner had no doubt that the general well-being of the community in Edinburgh, was, in a great measure, to be attributed to the cleansing operations which had been lately carried on—the closes, etc., were now in very much better order than they used to be. He was disposed, however, to think that the past year was rather remarkable for the milder character presented by disease, than for the rarity or absence of such diseases; at the Infirmary, he had had opportunities of witnessing every type of epidemic disease; indeed, the genuine exanthematic typhus had been lately more prevalent than during the two last years—but its character had been remarkably mild.

The *President* remarked that he had no doubt that the Society were of one mind as to the fact that there had been, during the past year, considerably less than the average rate of mortality, and that the general health of the community had been unusually favourable.

OBSTETRICAL SOCIETY OF EDINBURGH.

Session XIII.

ON A NEW MODE OF DIAGNOSING EARLY PREGNANCY, ETC. BY DR KEILLER.

Dr Keiller communicated to the Society the results of certain observations and experiments which he had for some time past been making in regard to the physical diagnosis of early pregnancy.

After remarking on the importance, in many cases, of being able to detect the existence of pregnancy during the early weeks, and on the difficulty of doing so compared with the facility of diagnosis during a later period of utero-gestation, Dr K. directed the attention of the Society to the various general and special indications of pregnancy, according to their usual sequence and importance, and particularly referred to the frequent uncertainty of the signs of pregnancy previous to the evidence derived from auscultation, as commonly practised. Dr Keiller, on referring to the earliest indications of pregnancy, derivable from the ordinary application of the stethoscope, observed, that, as the usual mode of diagnosing the existence or non-existence of pregnancy by auscultation was abdominal (*i.e.* through the walls of the abdomen), it must necessarily follow, that in a great majority of instances of early pregnancy, the actual condition of the uterus cannot, by such an indirect means of exploration, be sufficiently recognised, more especially in cases where the abdominal walls are unusually loaded with fat. Dr K. then spoke of the great advantage to be derived from stethoscopising the uterus by a more direct mode than can possibly be accomplished by mere abdominal auscultation; and stated, that so far as his observations and experiments had gone in this matter, he was persuaded that much valuable information can be gained by *auscultating the uterus directly from the vagina*, more especially while it continues (as it does in the early months) a *pelvic organ;* and, therefore, though not as yet within the sphere of *abdominal* auscultation, can be readily reached and stethoscopically investigated *per vaginam.*

Dr Keiller exhibited several forms of stethoscope which he had got made for the more early and more ready detection of pregnancy, as well as for the more efficient diagnosis of uterine and pelvic tumors, by vaginal auscultation, and cited the particulars of a number of instances in which he had so successfully experimented with the instrument, as to induce him to recommend its application in appropriate cases.

The form of the instrument which Dr K. exhibited, as well as the intention and mode of its application, were different from the "metroscope" of Nauche; a drawing and description of which he showed, as represented in "De Paul's *d'Auscultation Obstetricale.*"

Dr Keiller's uterine stethoscope, unlike that of Nauche, was intended to be applied, not to the os, nor even to the cervix uteri, but to the walls of the uterus *per vaginam*, and for which purpose its shape and size seemed appropriate.

Dr K. concluded his communication, by requesting the members of the Society to avail themselves of fitting opportunities of comparing and properly testing the advantages to be derived from a mode of pelvic diagnosis which his own observations and experiments justified him in recommending, not only on the ground of its practical importance, but also on the ground of its ready and safe application. He thought that although at first sight it might seem an exceedingly indelicate and absurd proposal to listen for uterine murmurs *per vaginam*, a little reflection must lead, at least, to the conclusion, that the vaginal application of a *specially constructed uterine stethoscope* cannot well be more, but, on the contrary, may be less objectionable than the use of an ordinary *speculum*, which has, luckily for uterine diagnosis, ceased to incur the condemnation of even the most fastidious.

Several members present expressed their opinion, that what had now been communicated by Dr Keiller, appeared calculated to promote the efficiency of diagnosis in many doubtful cases, and they hoped that the conclusions at which he had arrived, would be made generally known.

Dr K. stated that he had carefully noted the particulars of a number of the cases in which he had used the instrument referred to, and that he intended to publish them, along with the results of future experiments on the subject, with a view to their being more fully tested by others.

Dr Sidey said, he could corroborate what Dr K. had stated as to the great utility of this mode of diagnosis, and read to the Society the following particulars of a case of induction of premature labour in which it had been used with benefit.

CASE OF INDUCTION OF PREMATURE LABOUR. DR J. A. SIDEY.

Mrs ——, æt 29, married at the age of 20, has had five still-born children, the first at the fifth month; second, at the seventh; and the others about the seventh month. During her sixth pregnancy, she took the chlor. potass, and was delivered of a child in the Maternity Hospital, in April 1853. The labour was induced, and the child, which presented by the feet, was born alive, but only lived twelve hours. She obtained a nursing, and did not wean the child until the last week in September 1854. She had not menstruated, and felt the movement of her seventh child about the end of February 1855. She took the chlor. potass. She was examined several times, and the child's heart was distinctly heard beating in the left iliac region, but the placental bruit was never heard until the beginning of May, when Dr Keiller used his uterine stethoscope, and detected the bruit on the back wall of the uterus; several times she was examined, as she complained of the movements of the child not being so strong. But it was not until the 31st of May, when the placental bruit seemed failing, that the induction of premature labour was deemed necessary. Dr Keiller, and his pupil, Mr Fullarton, were kind enough to assist me.

On examination, the foetal heart was heard in the left iliac region—140, and good. No other sound could be detected through the abdominal walls; but, *per vaginam*, the placental bruit was easily heard, though not so healthy as on previous occasions. On tactile examination, the os was found healthy and close. The foetal head could be felt through the anterior part of the uterus. In consequence of the placenta being supposed to be situated near the os uteri, neither Dr Hamilton's nor Dr Weir's plans of induction were deemed advisable. Three pints of warm water were therefore injected into the vagina about twelve o'clock. This gave no pain or uneasiness. On examination again, the os was open to the size of half-a-crown; the head had vanished, and something like a leg or arm could be felt; foetal heart heard now most distinctly in the right iliac region. Though only slight uterine contractions came on when the child moved, the os uteri became gradually dilated, and the membranes protruded, but without any pain, till, at last, about 1 P.M., the bag of membranes, which was prolonged, nearly filled the vagina; the os nearly completely dilated; but the internal os not so soft or dilatable as the external. At 2 P.M. a smart dose of ergot was given, and as there was considerable difficulty in diagnosing through the membranes, whether the elbow or heel presented, an examination was made with chloroform. The head was then found to be lying in the right iliac fossa—face looking to the left; the left arm and cord presenting. The placenta could be felt on the back wall of the uterus, close to the internal os, *in the exact place as diagnosed by the stethoscope.* Some attempts were made at cephalic version, but unsuccessfully. Labour seemed still to be progressing without pain, although ergot was used freely. At twenty minutes past three, as the arm was fully down, the membranes were ruptured, the left foot was first taken hold of and then the right, and both brought down. At half-past three the feet were born, the toes looking directly backwards, and in a short time afterwards, the child was extracted, because the cord had ceased to beat, and felt tight. The child, evidently about seven months, was asphyxiated, but recovered. The placenta came away with a pain; the patient had very few after-pains, and both mother and child have done well. The placenta was evidently diseased.

THE LATE DR THOMAS LINDLEY KEMP.

Dr Thomas Lindley Kemp, whose death took place after a very short illness, on Friday the 2d of May, was born at Woolgreaves, in the parish of Sandall Magna, near Wakefield, Yorkshire, on the 7th of March 1821. He studied at Edinburgh, where he took his degree in medicine in the year 1842. Soon after, he commenced a semi-monthly medical journal, entitled *The Scottish and North of England Medical Gazette.* Out of this journal grew the *Northern Journal*, of which he was at first one of the editors. He practised medicine for some years in Edinburgh, and then repaired to Paris, where he remained for a considerable time. On his return to Edinburgh, he betook himself to the study of agriculture and agricultural chemistry. About two years ago his health, which had previously been good, showed indications of failure. In the spring and summer of 1855, he suffered much from severe fits of vomiting. He recovered so far as to be able to conduct, with much success, the course of Materia Medica and Chemistry in the Edinburgh Veterinary College during the winter session 1855-56, without interruption even for a single day. Immediately on the termination of these courses, he was seized with his former malady, rendered more alarming by an excessive discharge of dark matter, closely resembling altered blood, and died exhausted when it had continued no more than a day or two. A *post-mortem* examination showed the probable connection of the fits of vomiting with a fatty degeneration of the liver. We copy the following short notice of this gentleman from the *North British Agriculturist* of May 8:—

"We regret to announce the death of this gentleman, which took place, somewhat suddenly, at Williamfield, Newhaven, on Friday last. For several years past, Dr Kemp has largely contributed to the literature of Agriculture and Physiology. His treatise on Agricultural Chemistry, published by Messrs Blackwood, has been favourably received. Along with Mr C. M'Intosh, he compiled the *Year Book of Agriculture and Horticulture*, an annual publication, issued by Messrs Longman, London, and on which much research has been expended. The volume for the present year is the only one which has been issued. In October last, he was appointed by Professor Dick to the Chair of Materia Medica and Chemistry in the Veterinary College. Dr Kemp was much esteemed by all who knew him, for his kindliness and obliging disposition."

VARIETIES.

Effects of Colour upon Health.—From several years' observations in rooms of various sizes, used as manufacturing rooms, and occupied by females for twelve hours per day, I found that the workers who occupied those rooms which had large windows with large panes of glass, in the four sides of the room, so that the sun's rays penetrated through the room during the whole day, were much more healthy than the workers who occupied rooms lighted from one side only, or rooms lighted through very small panes of glass. I observed another very singular fact—viz., that the workers who occupied one room were very cheerful and healthy, while the occupiers of another similar room, who were employed on the same kind of work, were all inclined to melancholy, and complained of pains in the forehead and eyes, and were often ill and unable to work. Upon examining the rooms in question, I found they were both equally well ventilated and lighted. I could not discover anything about the drainage of the premises that could affect the one room more than the other; but I observed that the room occupied by the cheerful workers was wholly whitewashed, and the room occupied by the melancholy workers was coloured with yellow ochre. I had the yellow ochre all washed off, and the walls and ceilings whitewashed. The workers ever after felt more cheerful and healthy.—*Correspondent of the Builder.*

Air-Poison.—People have often said that no difference can be detected in the analyzation of pure and impure air. This is one of the vulgar errors difficult to dislodge from the public brain. The fact is, that the condensed air of a crowded room gives a deposit which, if allowed to remain for a few days, forms a solid, thick, glutinous mass, having a strong odour of animal matter. If examined by the microscope, it is seen to undergo a remarkable change. First of all, it is converted into a vegetable growth, and this is followed by the production of multitudes of animalcules; a decisive proof that it must contain organic matter, otherwise it could not nourish organic beings. This was the result arrived at by Dr Angus Smith, in his beautiful experiments on the Air and Water of Towns; wherein he showed how the lungs and skin gave out organic matter, which is in itself a deadly poison, producing headache, sickness, disease, or epidemic, according to its strength. Why, if "a few drops of the liquid matter, obtained by the condensation of the air of a foul locality, introduced into the vein of a dog, can produce death with the usual phenomena of typhus fever," what incalculable evil must it not produce on those human beings who breathe it again and again, rendered fouler and less capable of sustaining life with each breath drawn? Such contamination of the air, and consequent hot-bed of fever and epidemic, it is easily within the power of man to remove. Ventilation and cleanliness will do all, so far as the abolition of this evil goes, and ventilation and cleanliness are not miracles to be prayed for, but certain results of common obedience to the laws of God.—*Dickens's Household Words.*

NOTICE TO CONTRIBUTORS.

As it is of the utmost consequence that the Journal should punctually be ready for delivery in London on Magazine day (the last day of each month), we have to intimate to Contributors that, generally, we cannot guarantee the insertion of any article received after the 15th; and in no case, however urgent, can any paper be inserted, if put into the Editor's hands beyond the 20th of any month.

We would also impress on our friends the importance of brevity, as extended or divided communications are less likely to attract the attention of the reader, than if concentrated into one article of moderate dimensions.

PUBLICATIONS RECEIVED.

Records of Obstetric Consultation Practice, etc. By Edward Copeman. London, 1856.
On the Nature of Cholera, as a Guide to Treatment. By Wm. Sedgwick. London, 1856.
Cholera Asiatique où il Prend sa source. Par F. Balequer.
Asiatic Cholera, its Nature, Treatment, etc. By R. Pairman, Surgeon, Biggar. Edinburgh, 1856.
History of Asiatic Cholera Morbus. By F. Balequer. 1856.
Essays on State Medicine. By H. W. Rumsey. London, 1856.
Surgical Reports and Miscellaneous Papers etc. By Geo. Hayward, M.D. Boston, 1855.
Memoir of the Cholera at Oxford. By H. W. Acland, M.D. London, 1856.
Lectures on the Diseases of Women. By Charles West, M.D. London, 1856.
Brown-Séquard. Notice Sur les Travaux de M. E. Brown-Séquard. Paris, 1855.
Broca. Propriétés et Fonctions de la Moelle Epinière. Par M. Paul Broca. Paris, 1855.
Brandt. Thèse Pour le Doctorat en Médecine. Par. G. H. Brandt. Paris, 1855.

We regret that a late discussion in the Medico-Chirurgical Society should have given rise to unpleasant feelings between several members of the profession. As we wish to avoid such disagreeable matters for the future, we decline inserting a correspondence between Dr Andrew Wood and Professor Bennett relative to the letter inserted in the last number of the Journal, at page 1054; and have simply to state (which we do with pleasure), that Dr Wood and Professor Bennett are mutually satisfied, and that nothing personally disrespectful, or calculated to prevent friendly intercourse, was intended on either side.

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